

# “Global Financial Crisis of 2007 – 2009: Theoretical and Empirical Perspectives”

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Summer Economics at SNU 2009

and

Korea Economic Association

# Outline of Lectures

- **Topic 1.** Overview of the issues and evidence
  - Stages of crisis
  - Financial structure and intermediation
- **Topic 2.** Financial intermediation and the price of risk
  - Theoretical model
  - Application to risk-taking channel of monetary policy
- **Topic 3.** Securitization and Financial Structure
  - Securitization and financial stability
  - Global imbalances
  - Size of financial sector
- **Topic 4.** Policy Issues from the Crisis
  - Finance and international trade
  - Financial regulation

# Three Stages of the Crisis

- Stage 1: July 2007 – Dec 2007
- Stage 2: Jan 2008 – June 2008
- Stage 3: July 2008 – March 2009
- Recovery Stage

# Stage 1

Financial System

**Subprime  
Liquidity Crisis**

Real Economy

July 2007 – December 2007

# Stage 2

Financial System

Real Economy

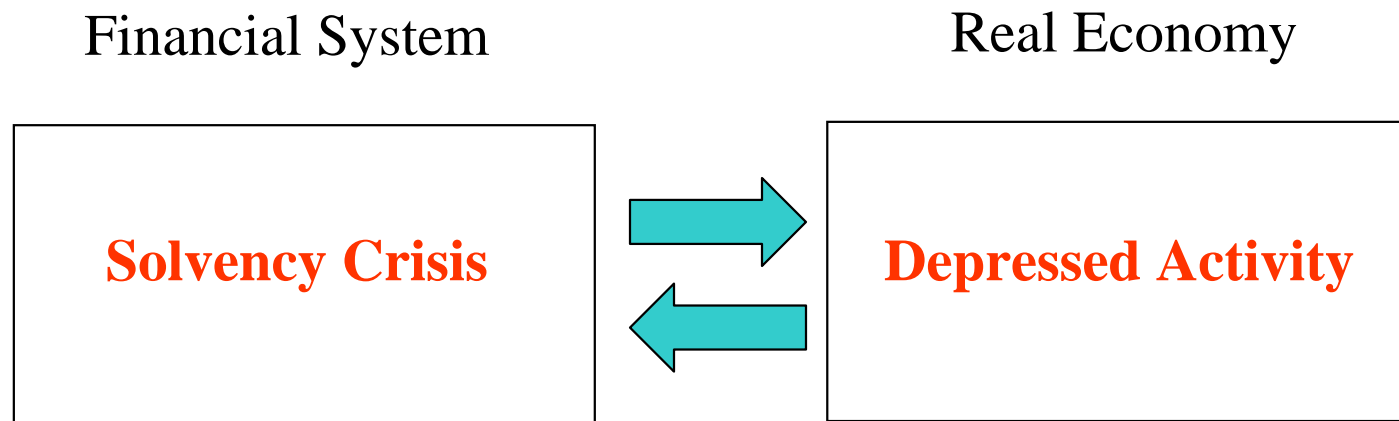
**Liquidity Crisis  
Credit Crunch**



**House Price Decline  
Depressed Activity**

January 2008 – June 2008

# Stage 3



July 2008 – ...

# Order

- Financial Sector
- Real Sector
- U.S. Fiscal outlook

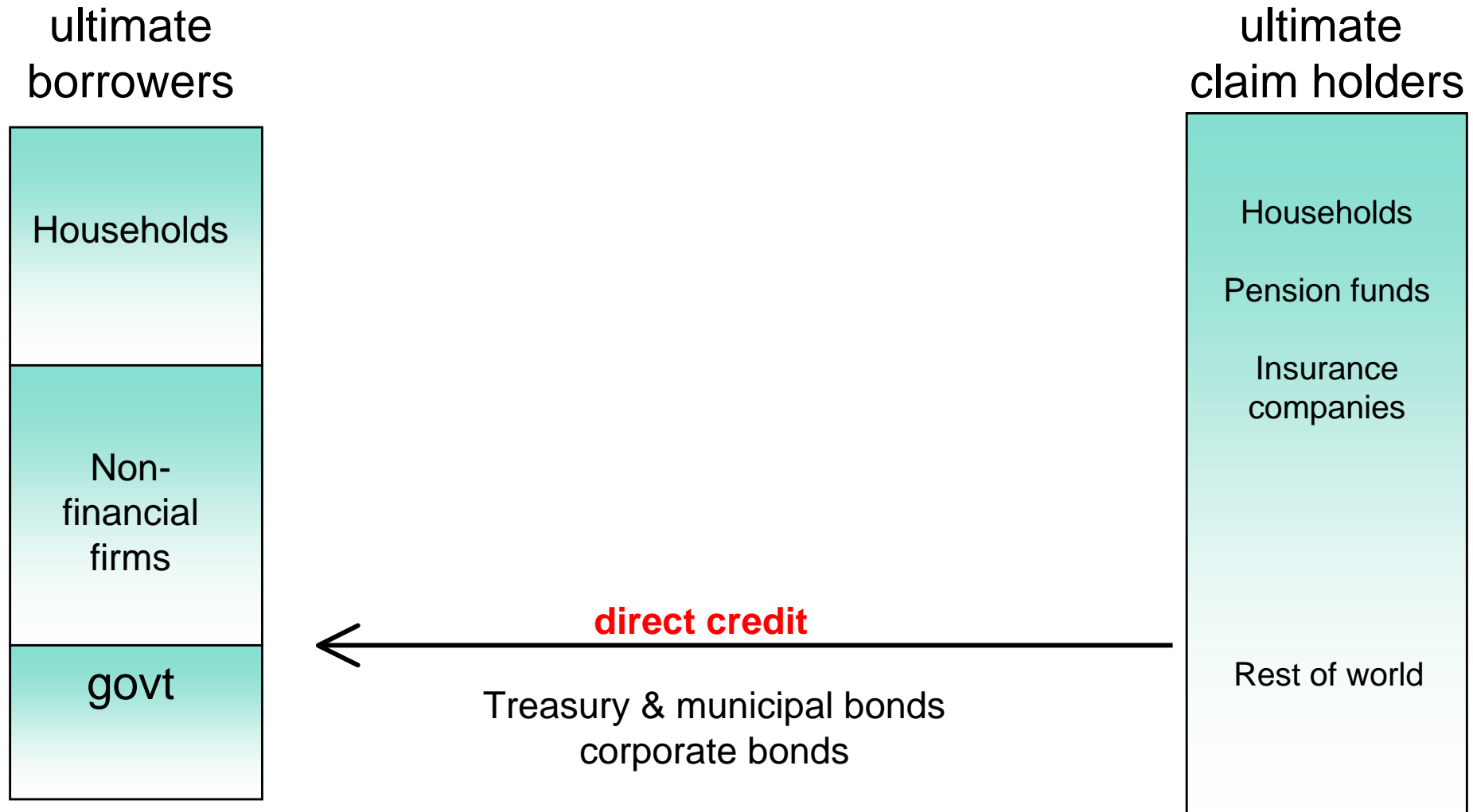
# Financial Intermediation and Policy Response in the Crisis

Tobias Adrian,  
Federal Reserve Bank of New York

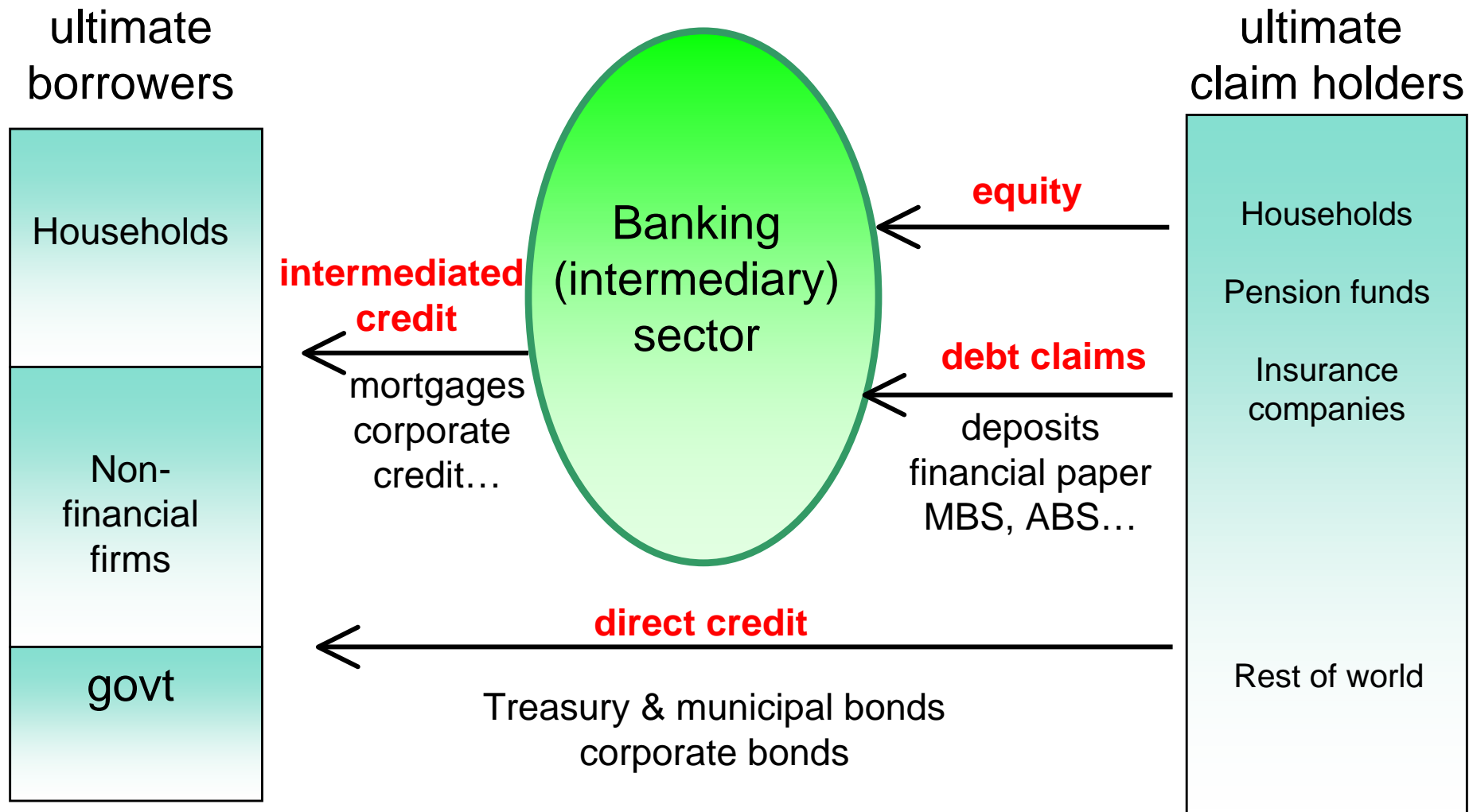
Hyun Song Shin  
Princeton University



# Stylized Financial System

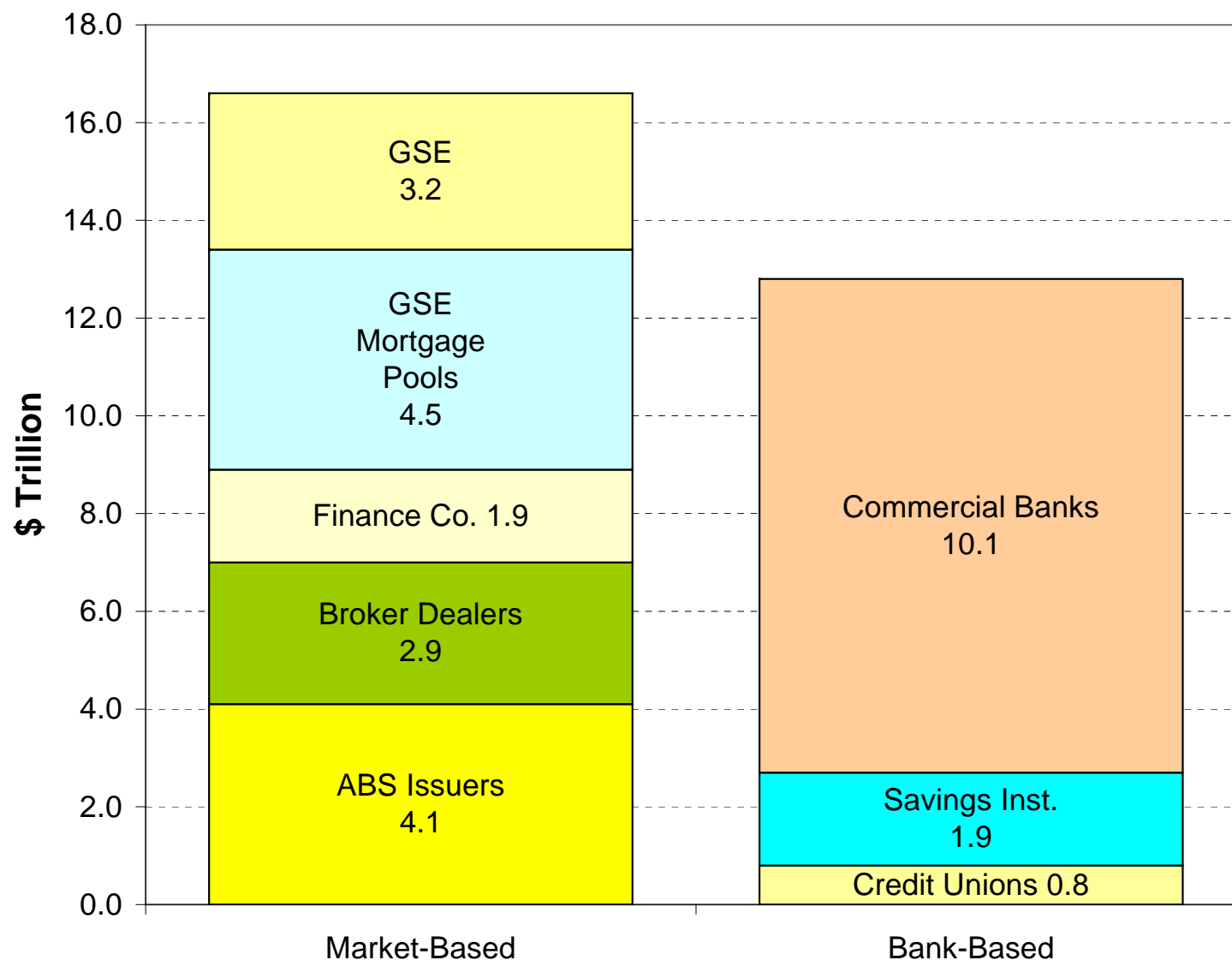


# Stylized Financial System

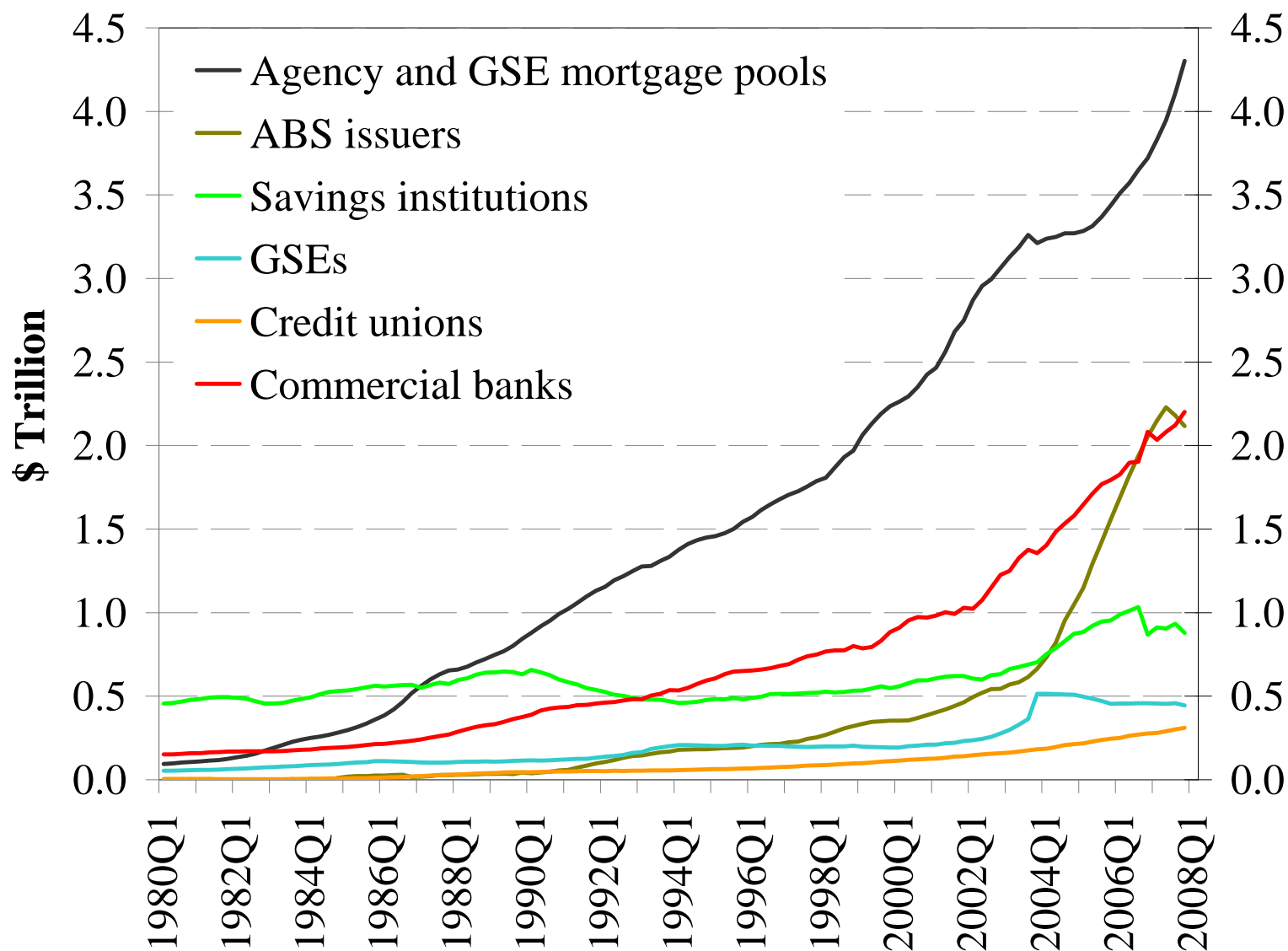


# US Financial Intermediaries

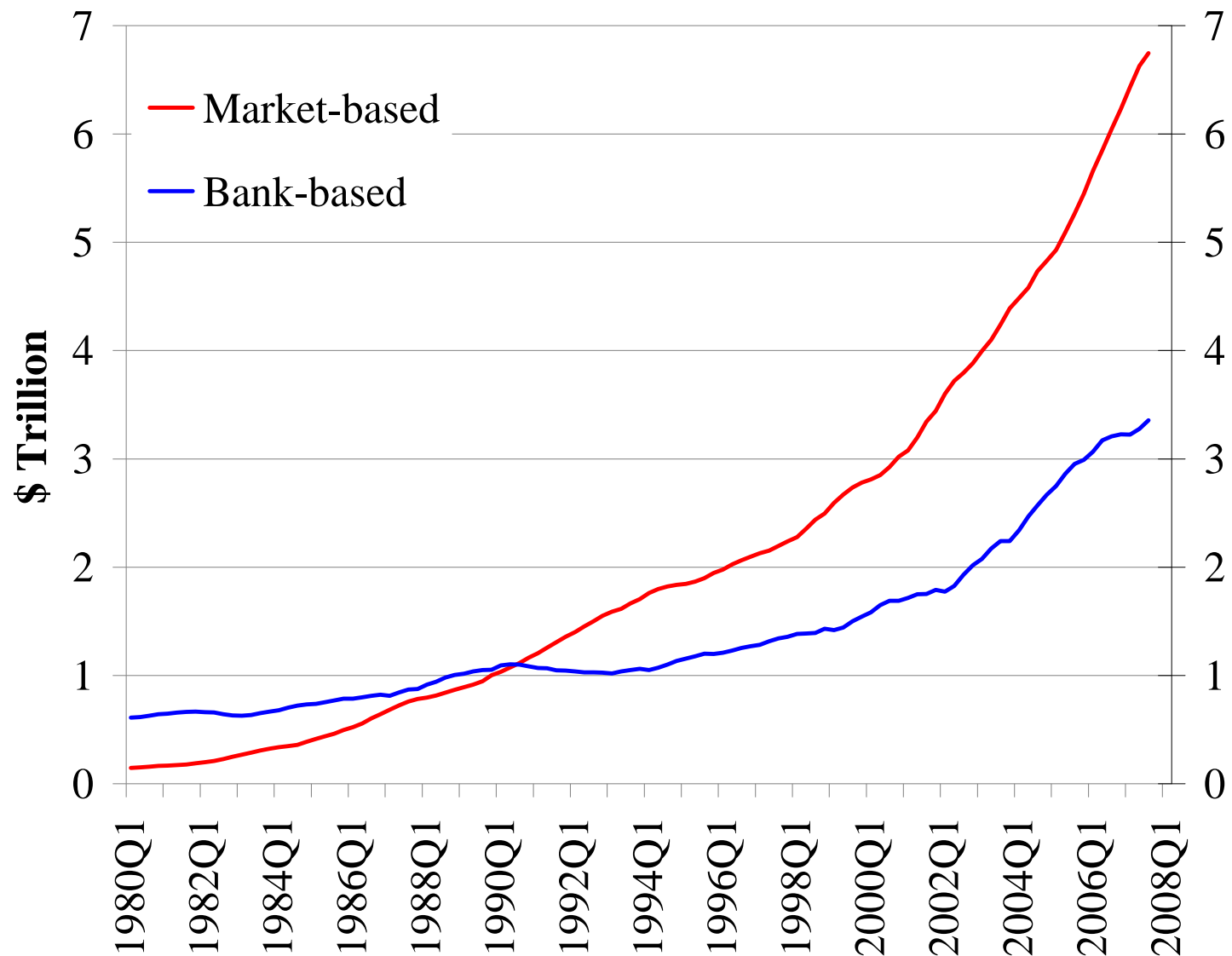
## Total Assets (2007Q2)



# Holding of US Home Mortgages by Type of Financial Institution



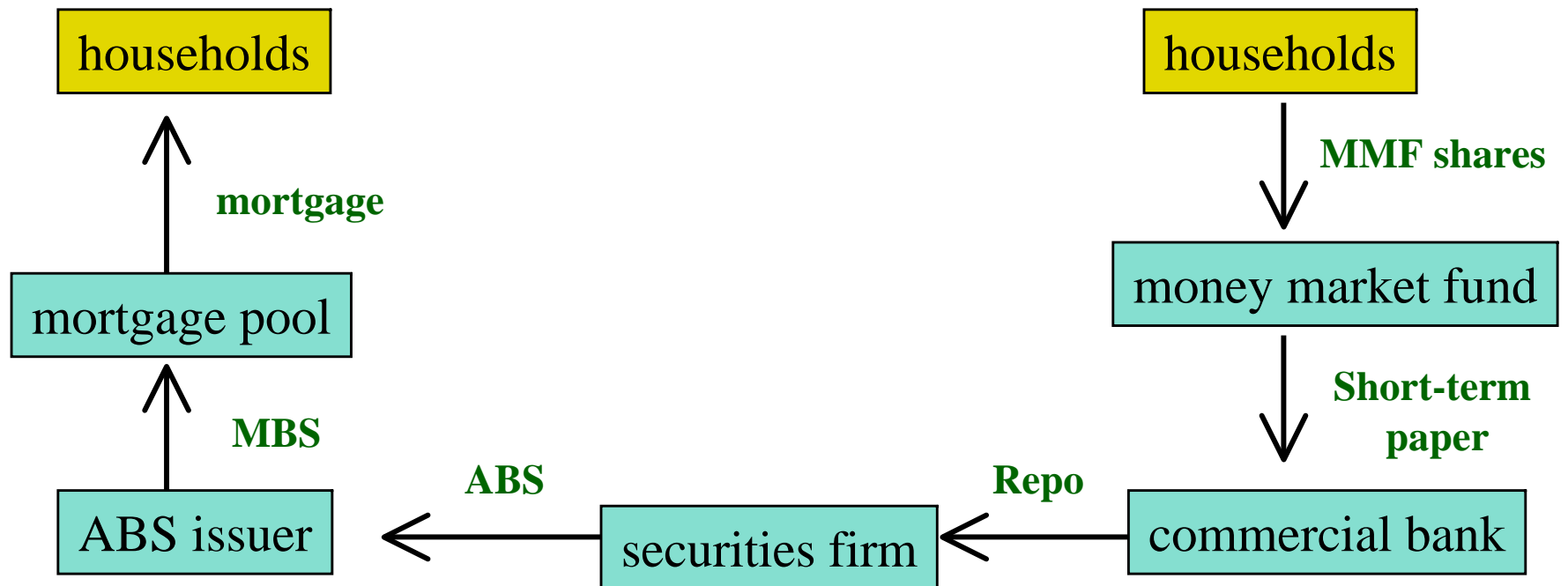
# Market-Based and Bank-Based Holding of Home Mortgages



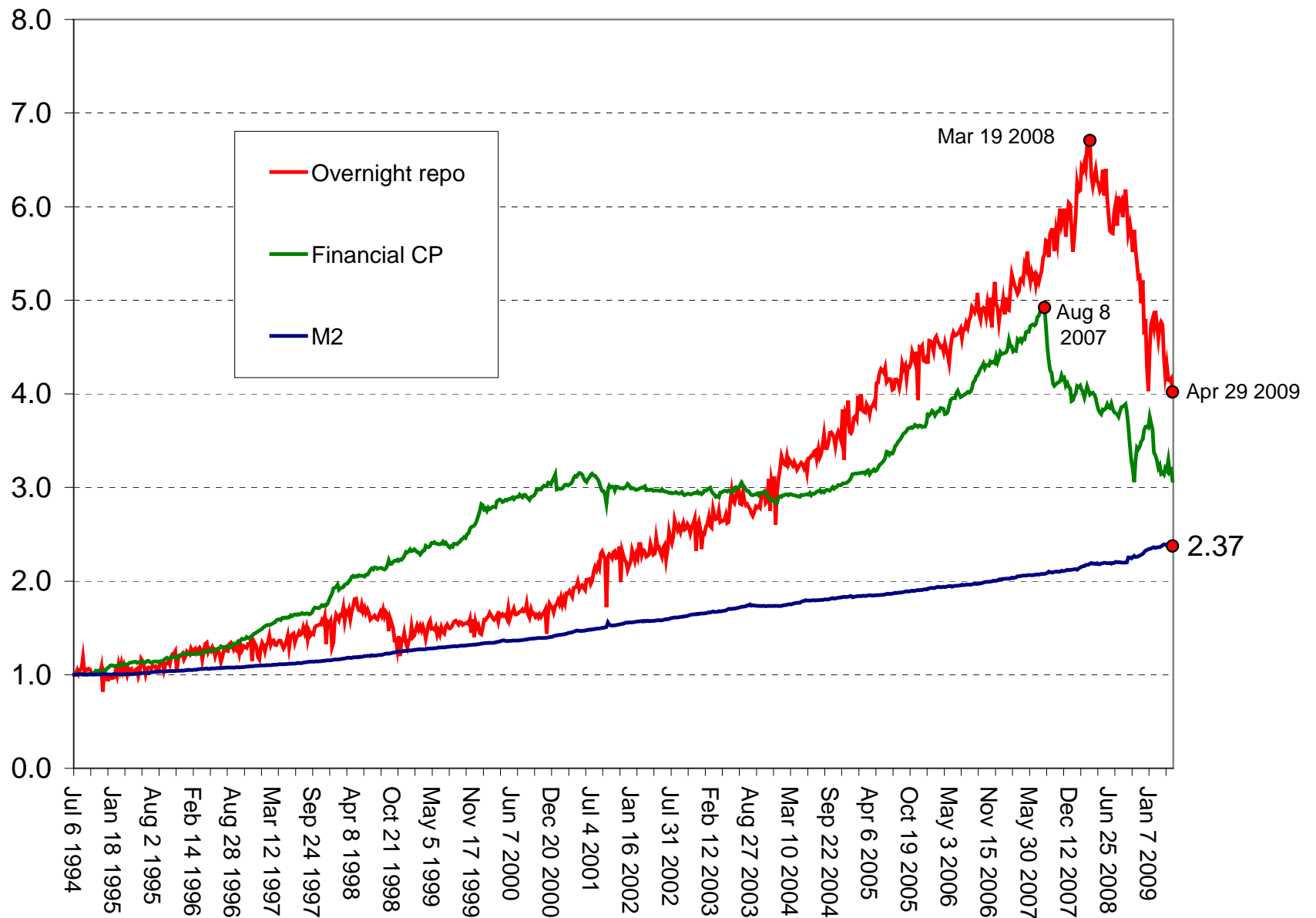
# Short Intermediation Chain



# Long Intermediation Chain

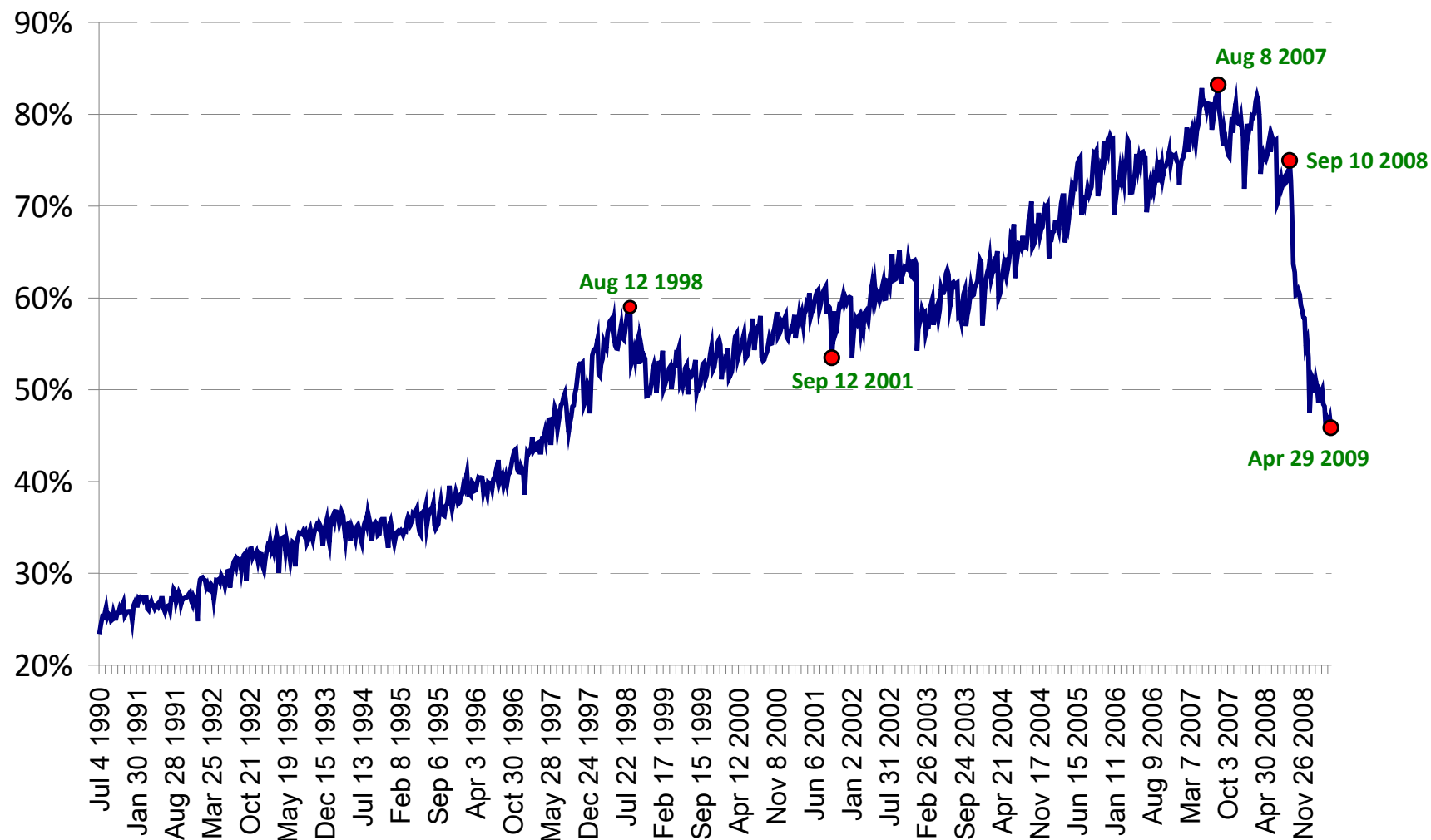


# Overnight repos, Financial CP and M2 (weekly, July 6 1994 as base date)





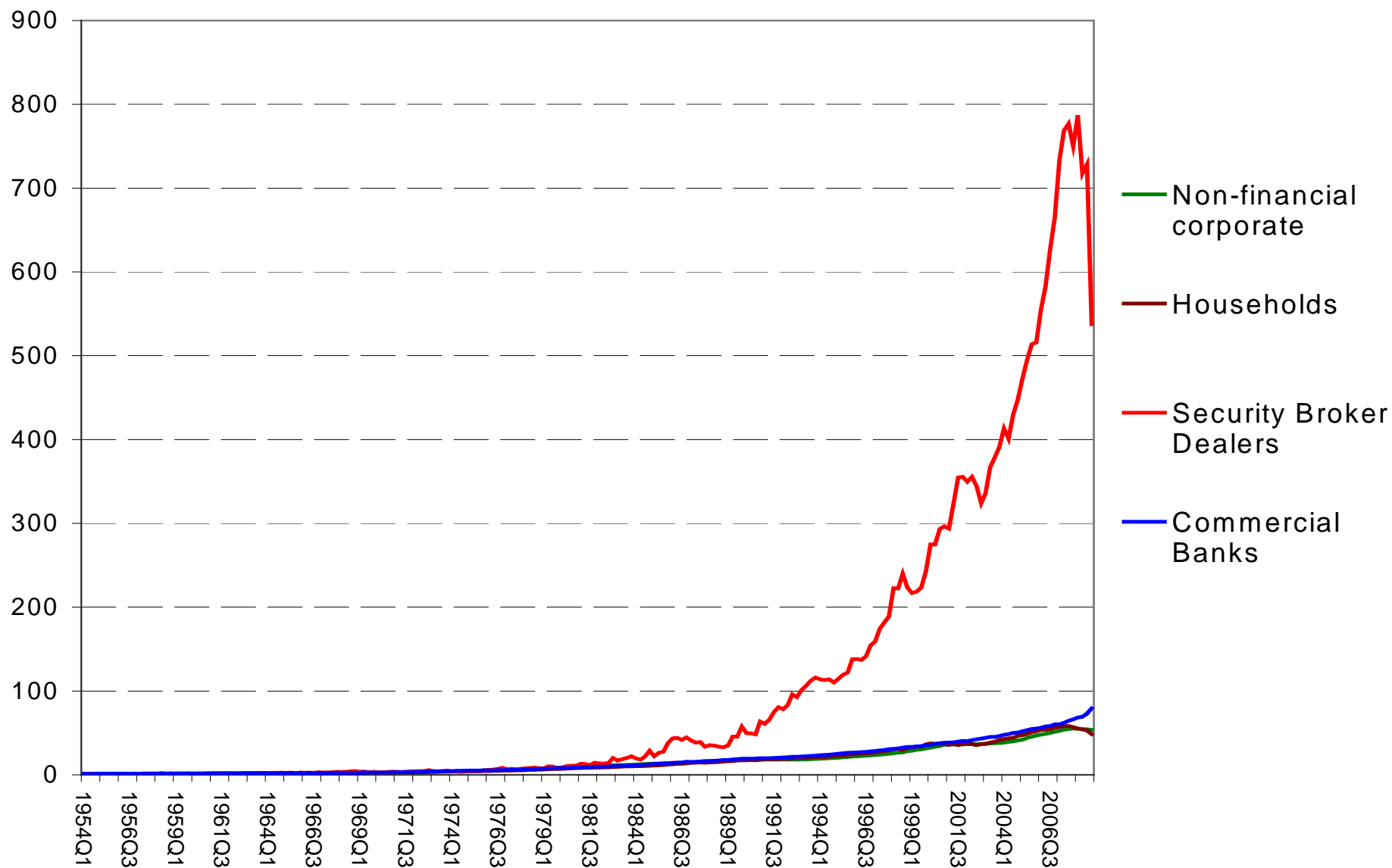
# Repos and Financial CP as Fraction of M2 (weekly)



Source: Adrian and Shin (2009)

# Relative Size of Intermediary Sector

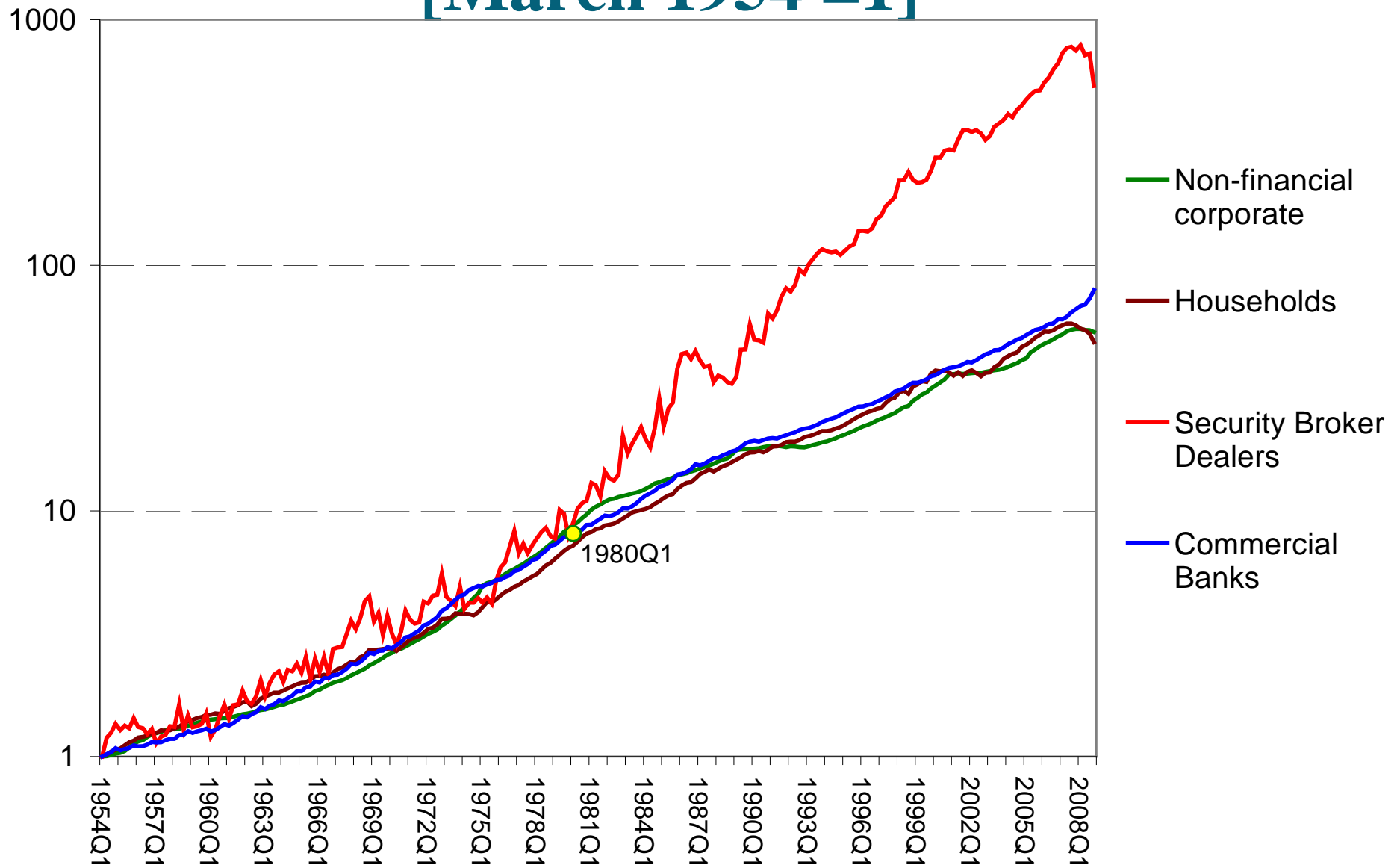
# Total Assets of Four Sectors [March 1954 = 1]



(Source: Federal Reserve, Flow of Funds)

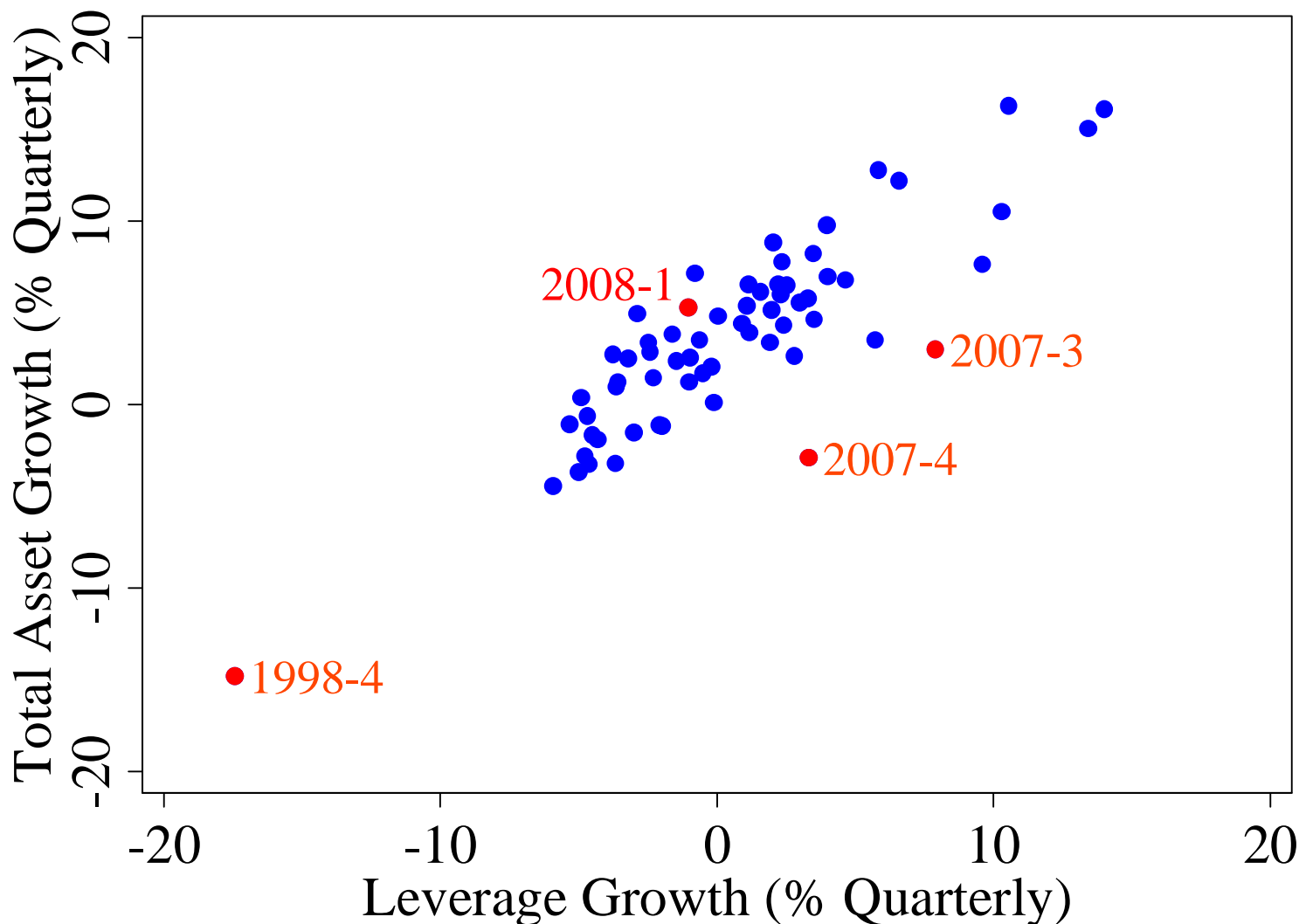
# Total Assets (Log Scale)

## [March 1954 =1]



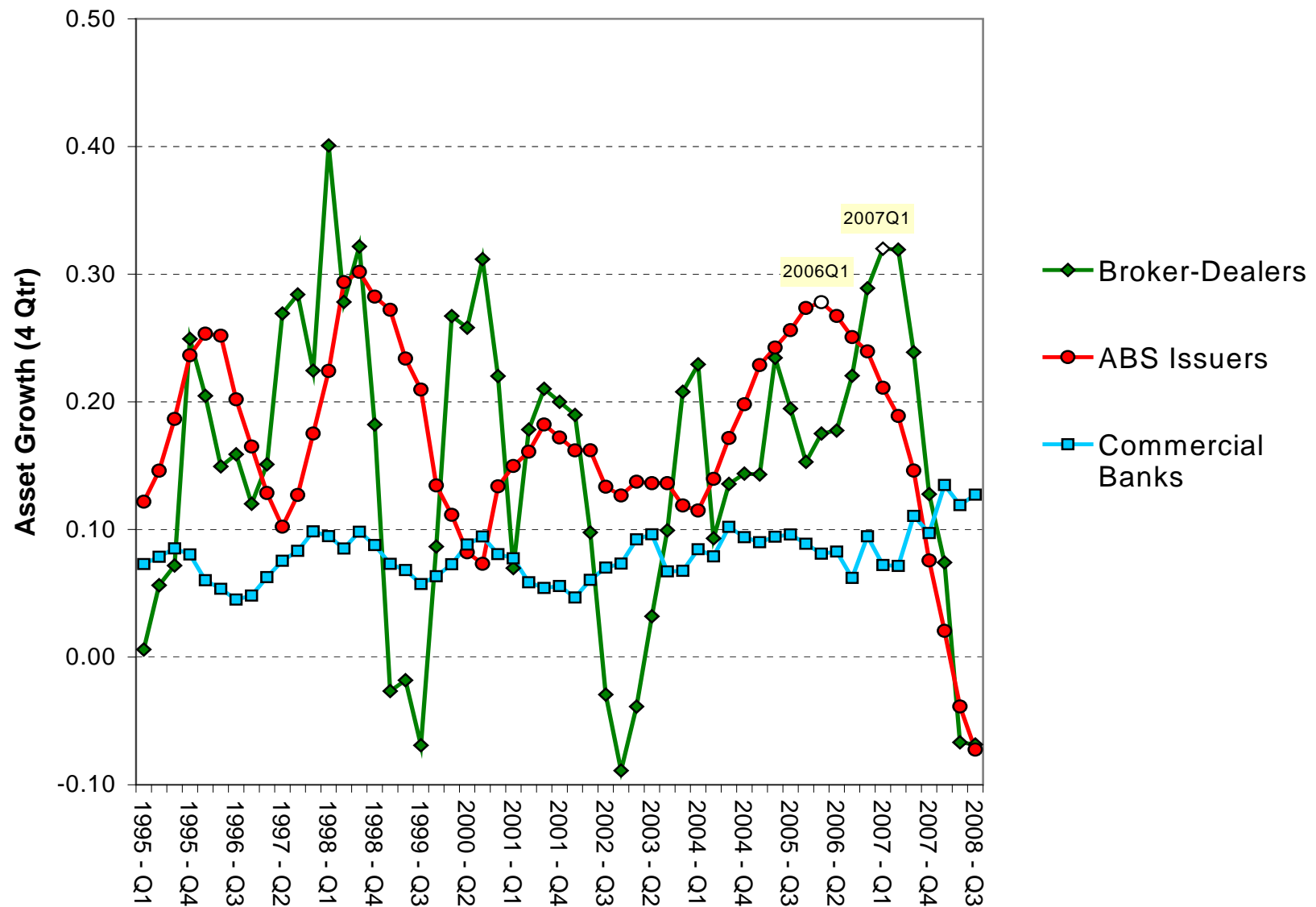
(Source: Federal Reserve, Flow of Funds)

# Procyclical Leverage of Five US Investment Banks

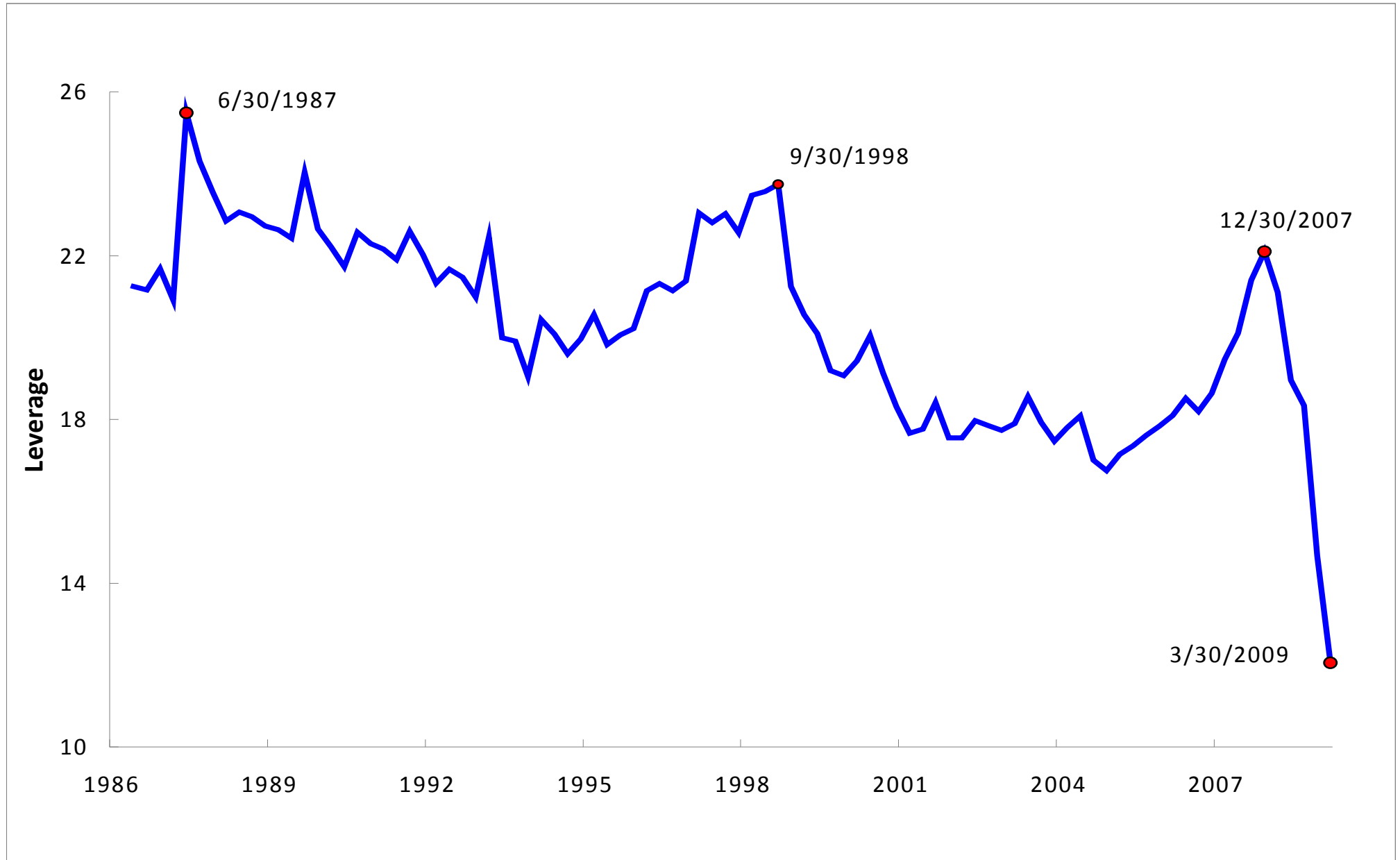


Source: Adrian and Shin (2007)

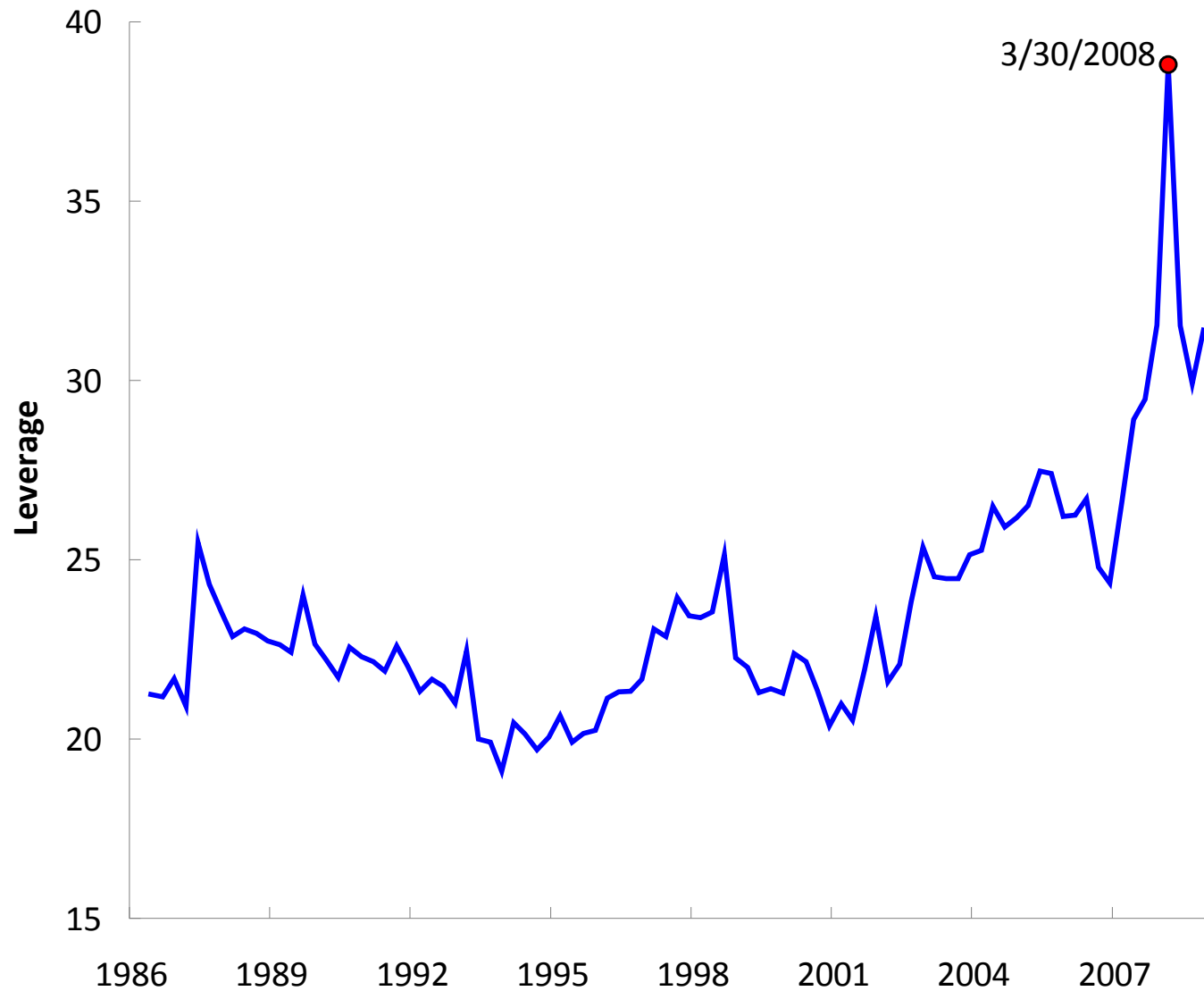
# Focusing on bank lending only would be a mistake...



# US Primary Dealer Mean Leverage

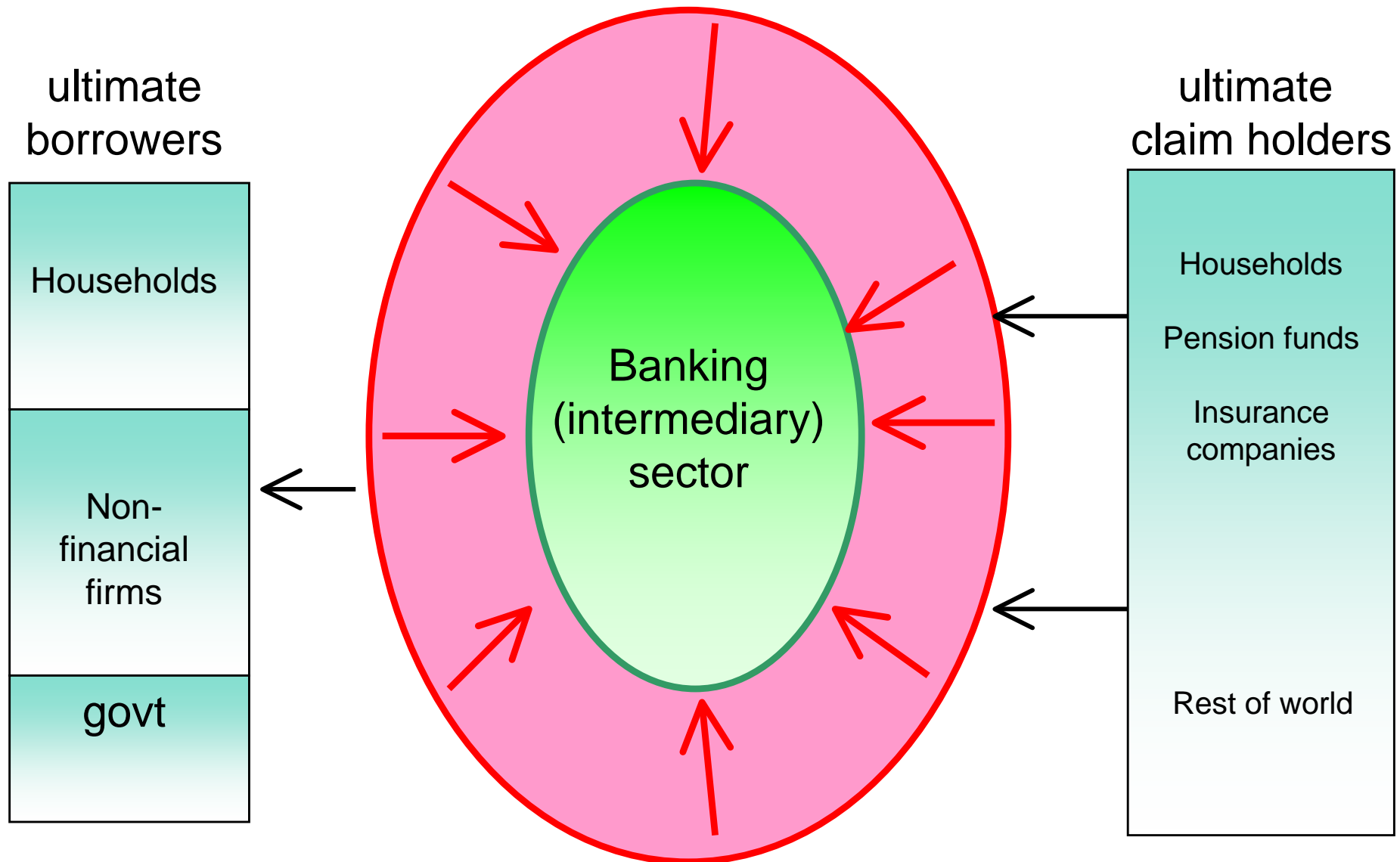


# All Primary Dealer Mean Leverage

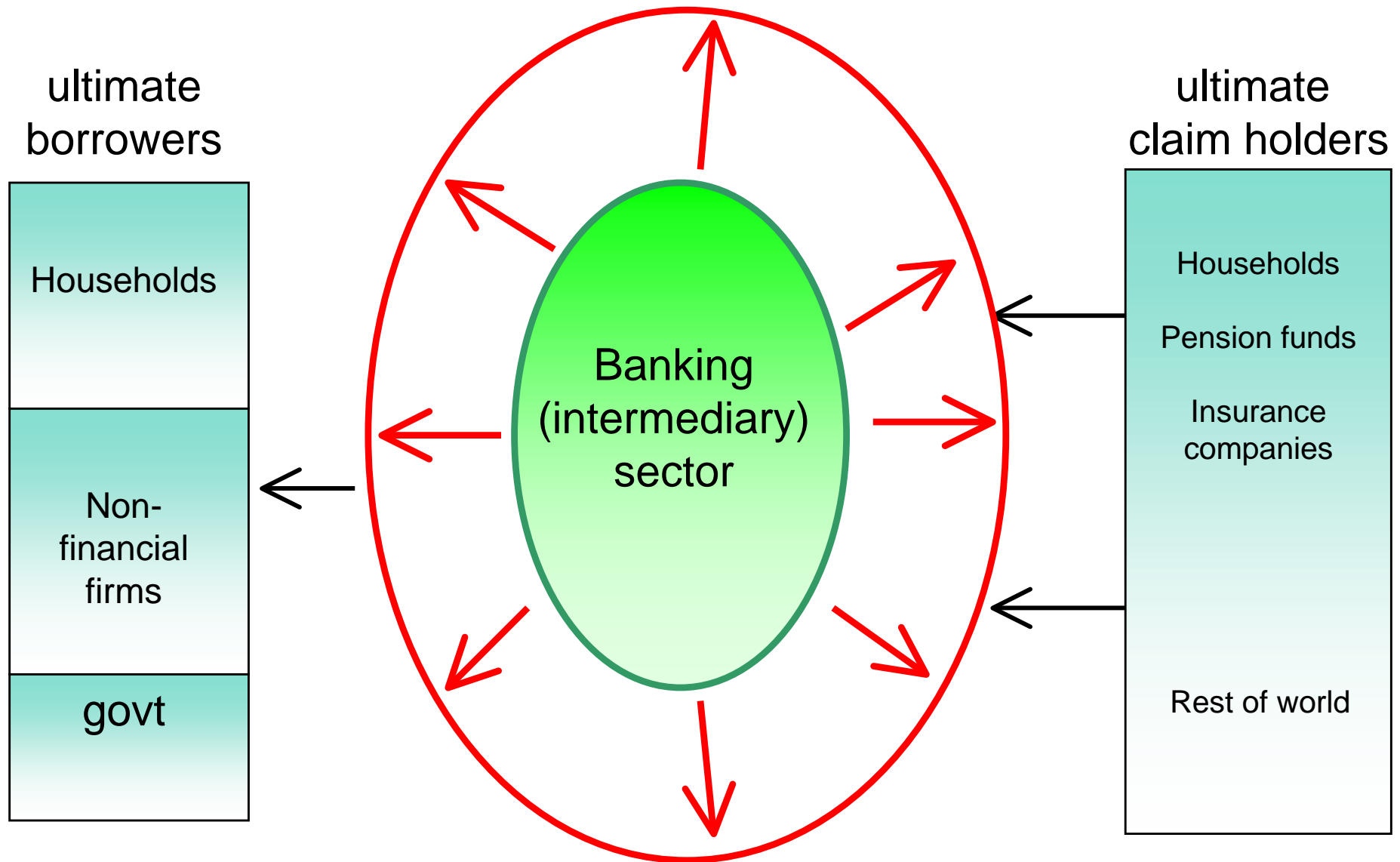




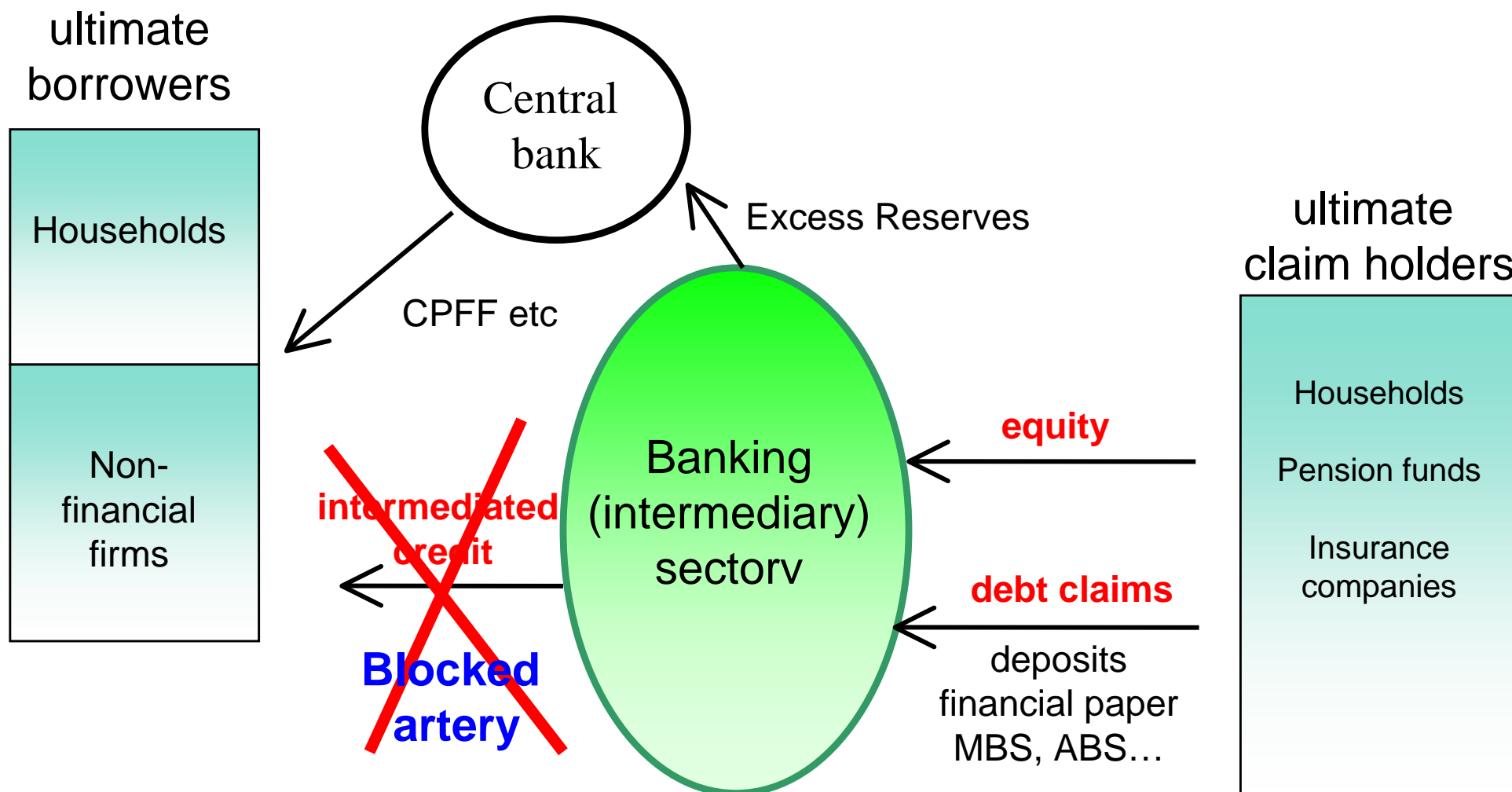
# Biggest Damage is Done in Contractions



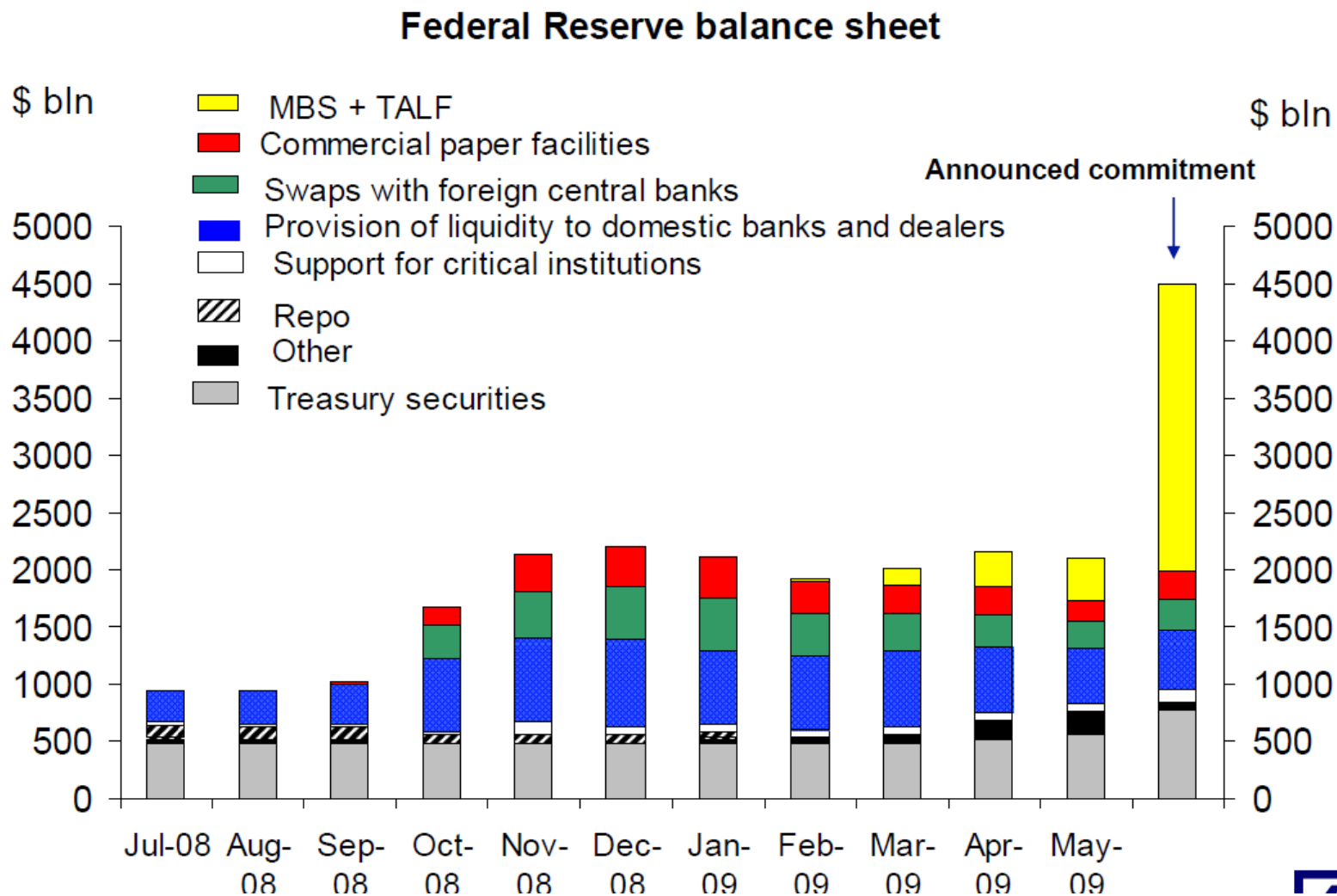
# But Seeds of Crises Are Sown in Expansions



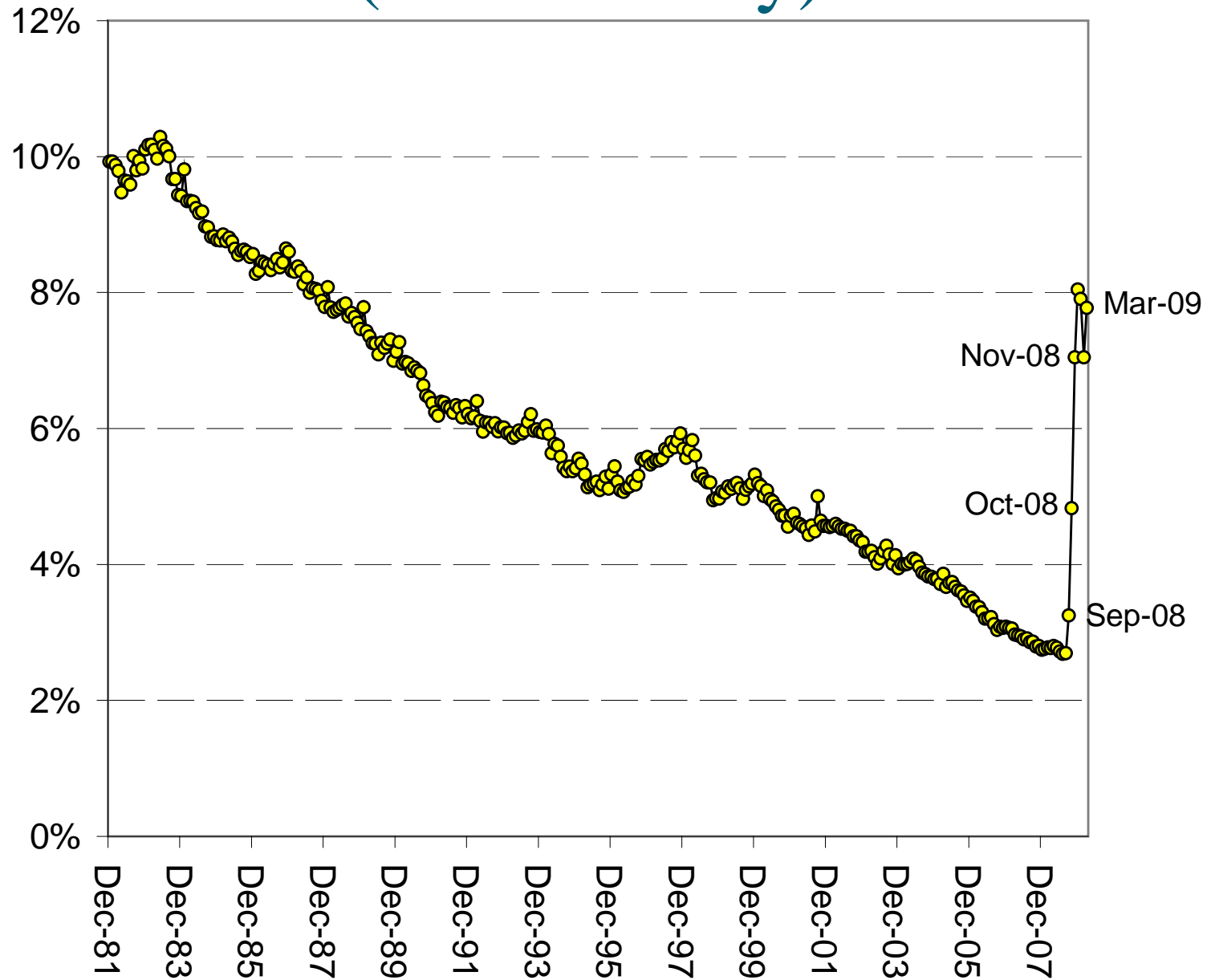
# By-pass Surgery



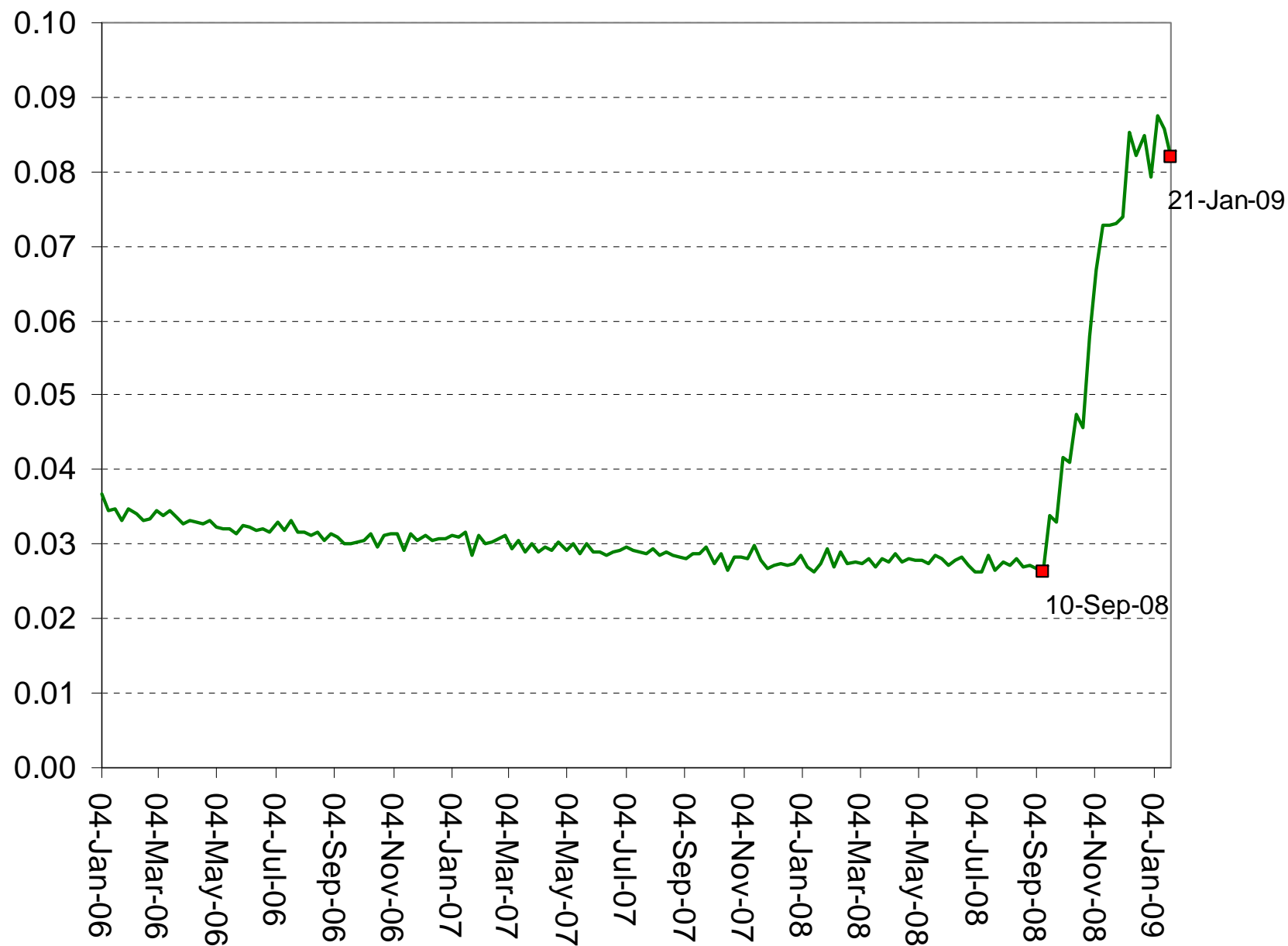
# Federal Reserve Balance Sheet



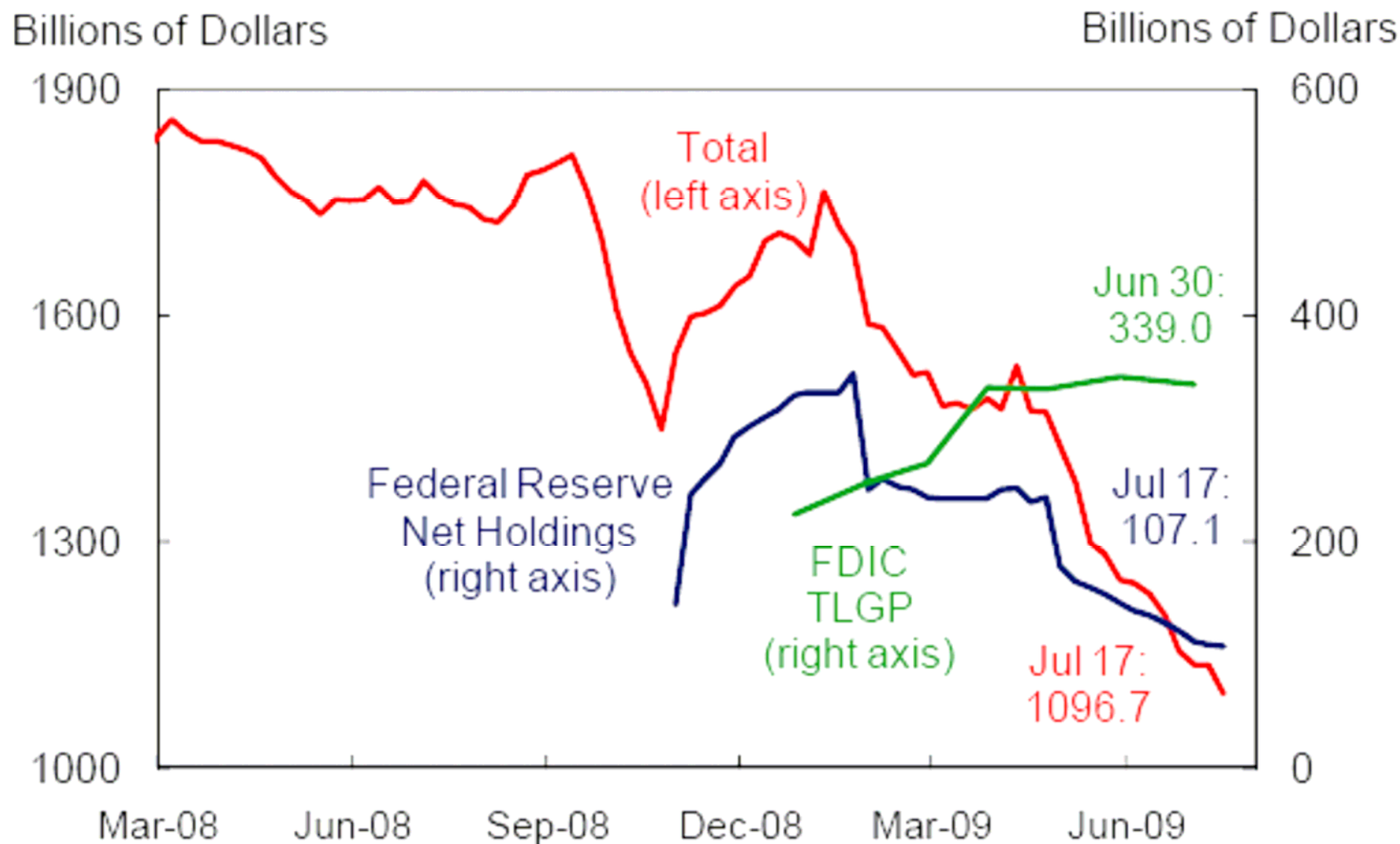
# US Commercial Bank Cash/Assets Ratio (H8 Monthly)



# Cash/Assets Ratio (Weekly)

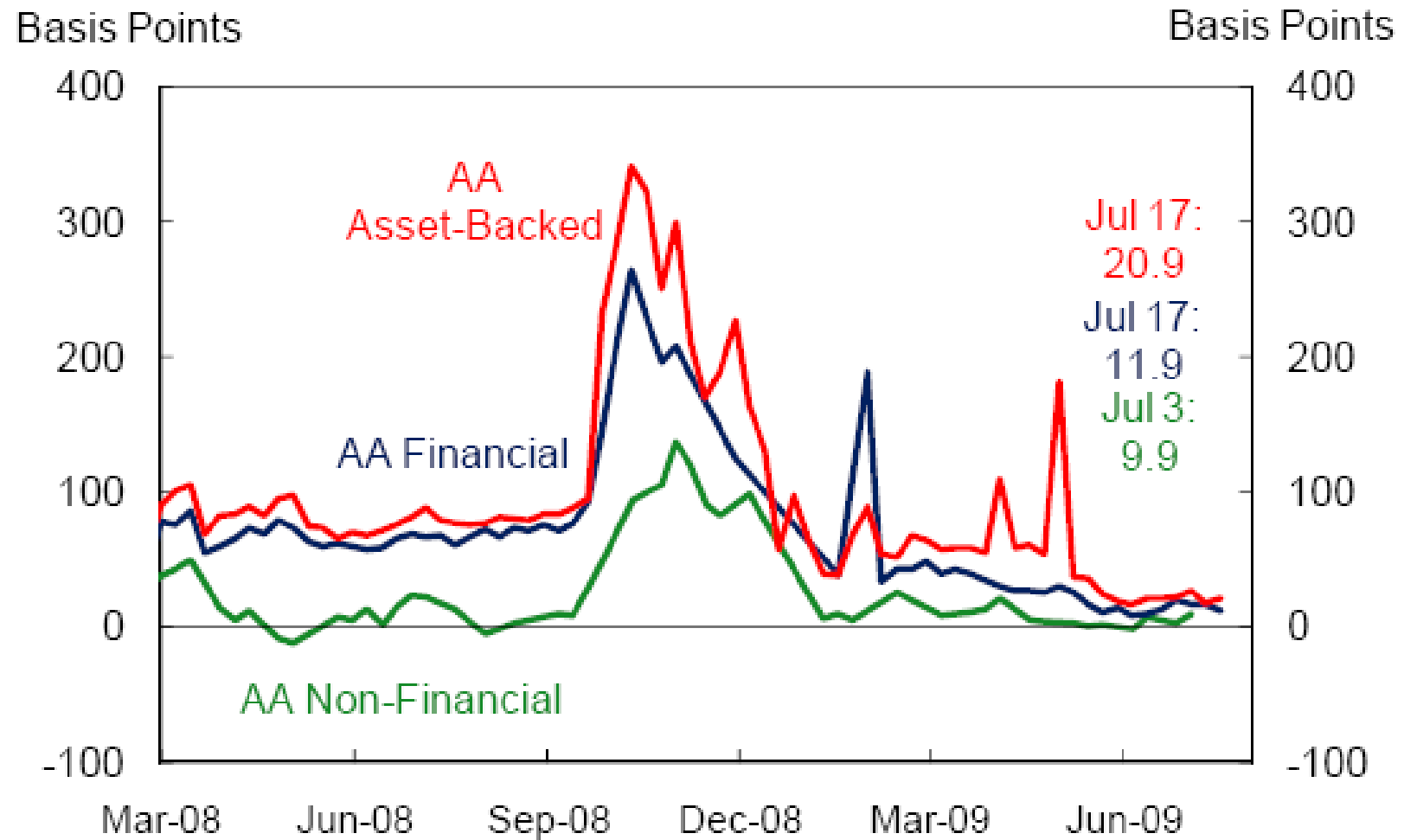


# CPFF and Commercial Paper Outstanding



Source: Adrian and Shin (2009)

## 3-month CP Rates over OIS



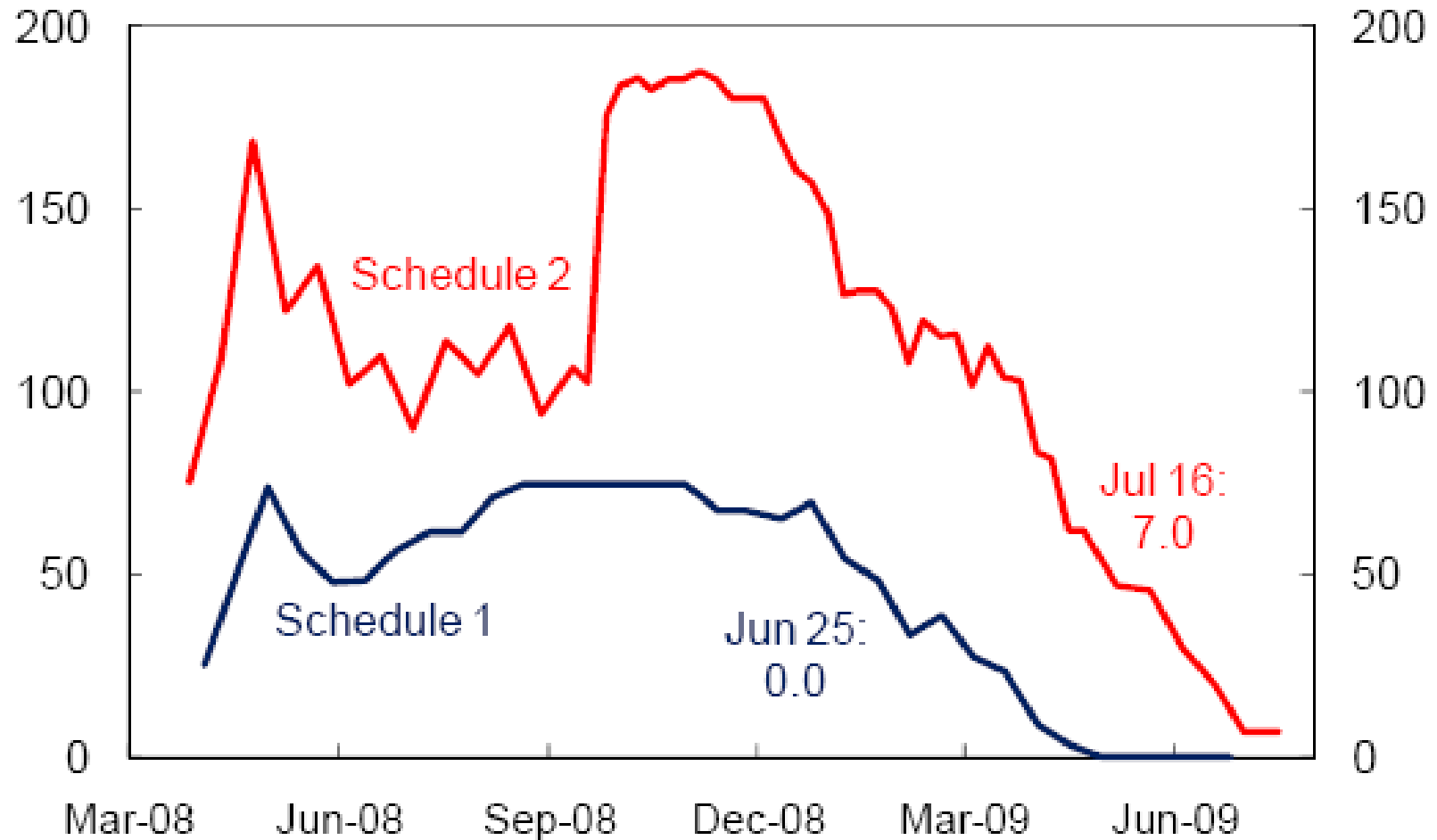
Source: Adrian and Shin (2009)



# TSLF Total Outstanding

Billions of Dollars

Billions of Dollars

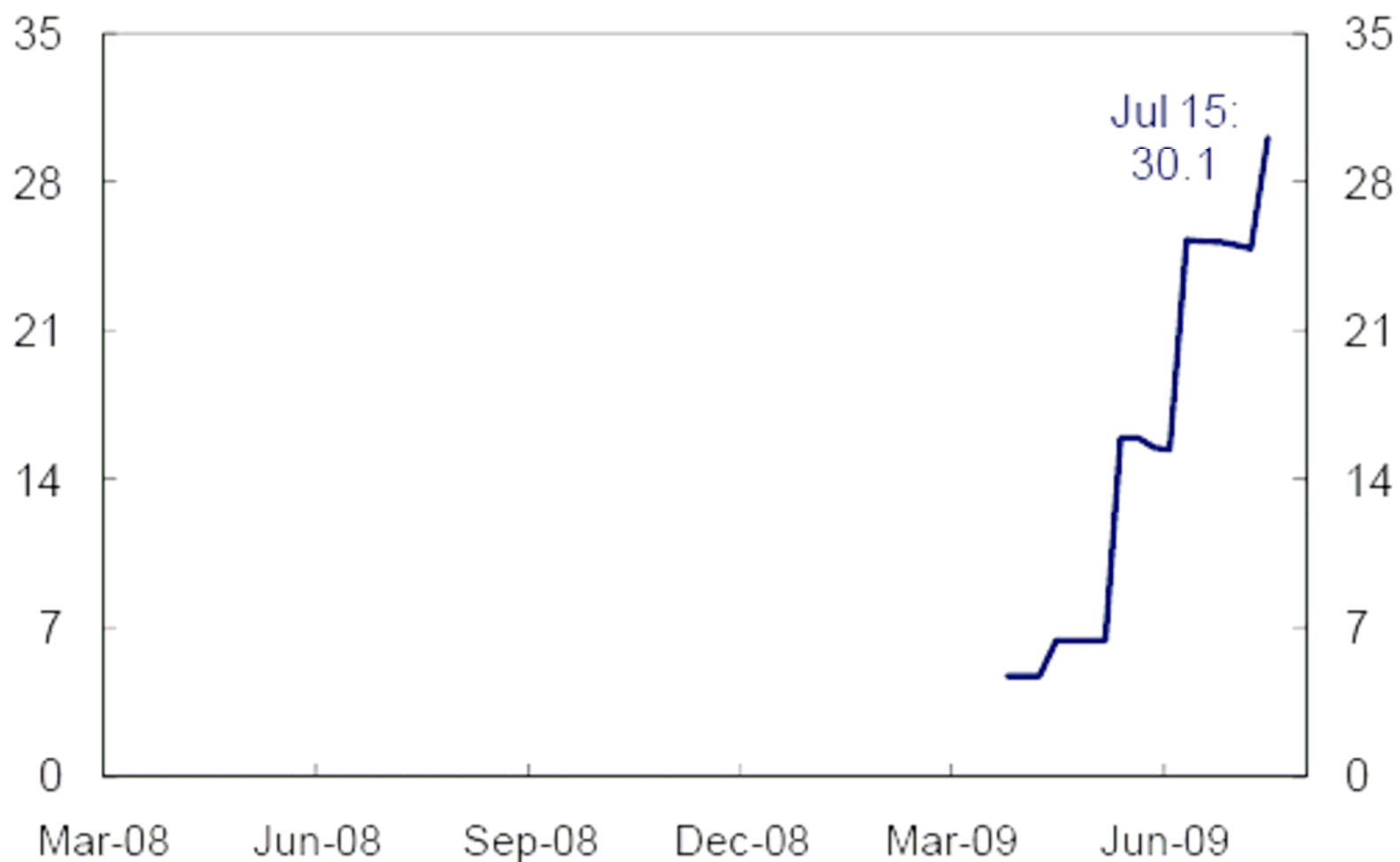


Source: Adrian and Shin (2009)

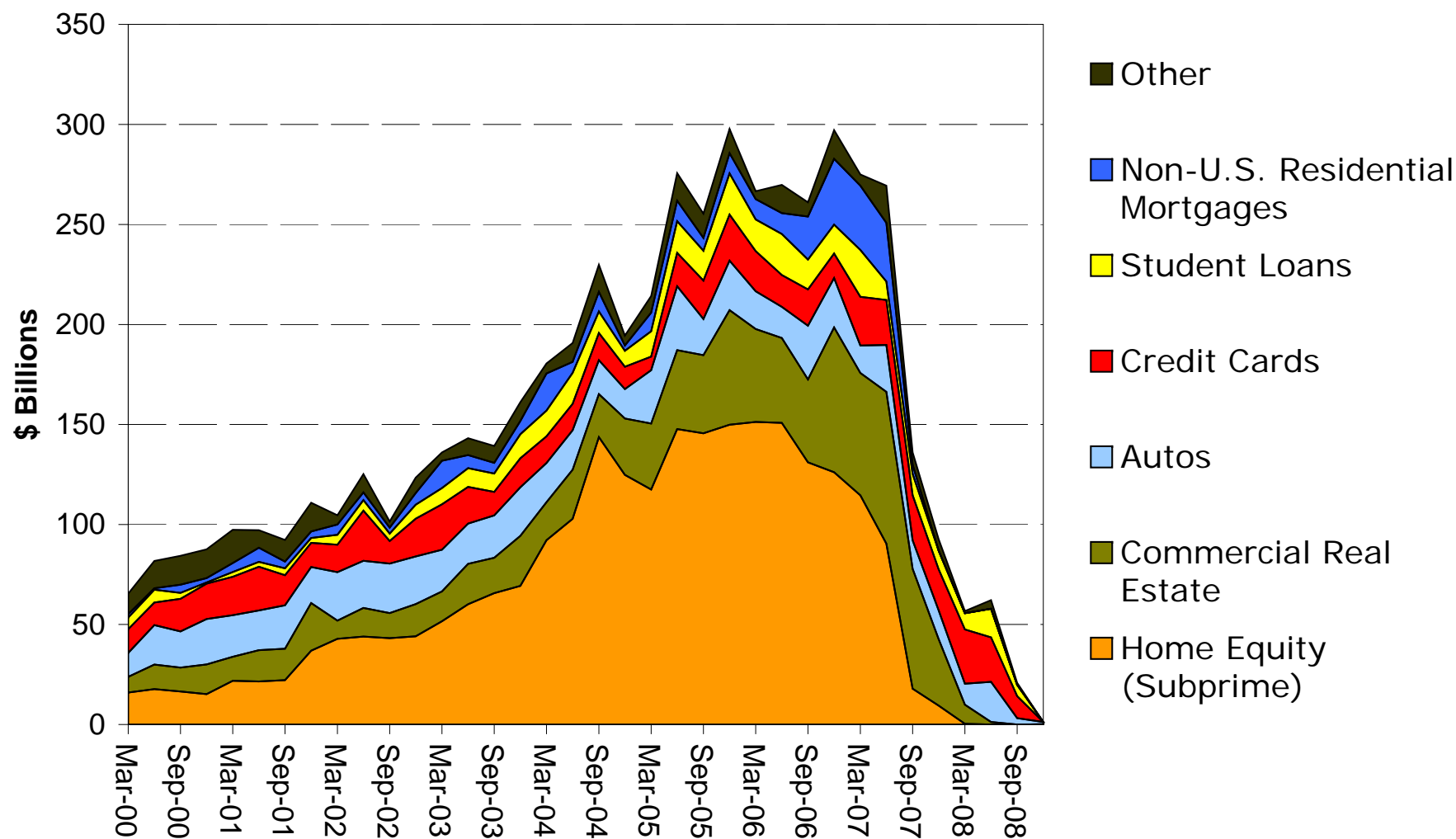
# TALF Total Outstanding

Billions of Dollars

Billions of Dollars

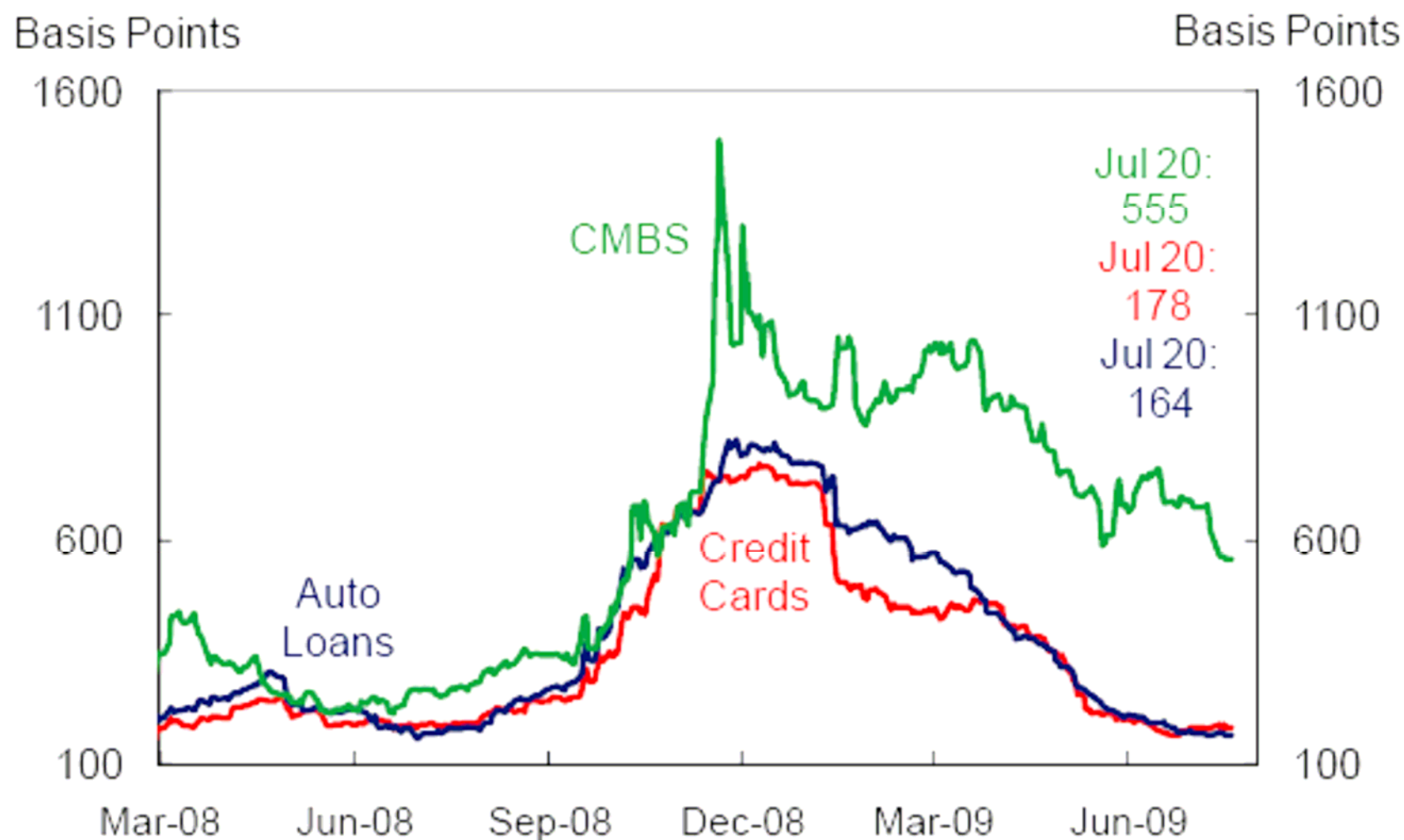


# New Issuance of Asset Backed Securities in Previous Three Months



Source: JP Morgan

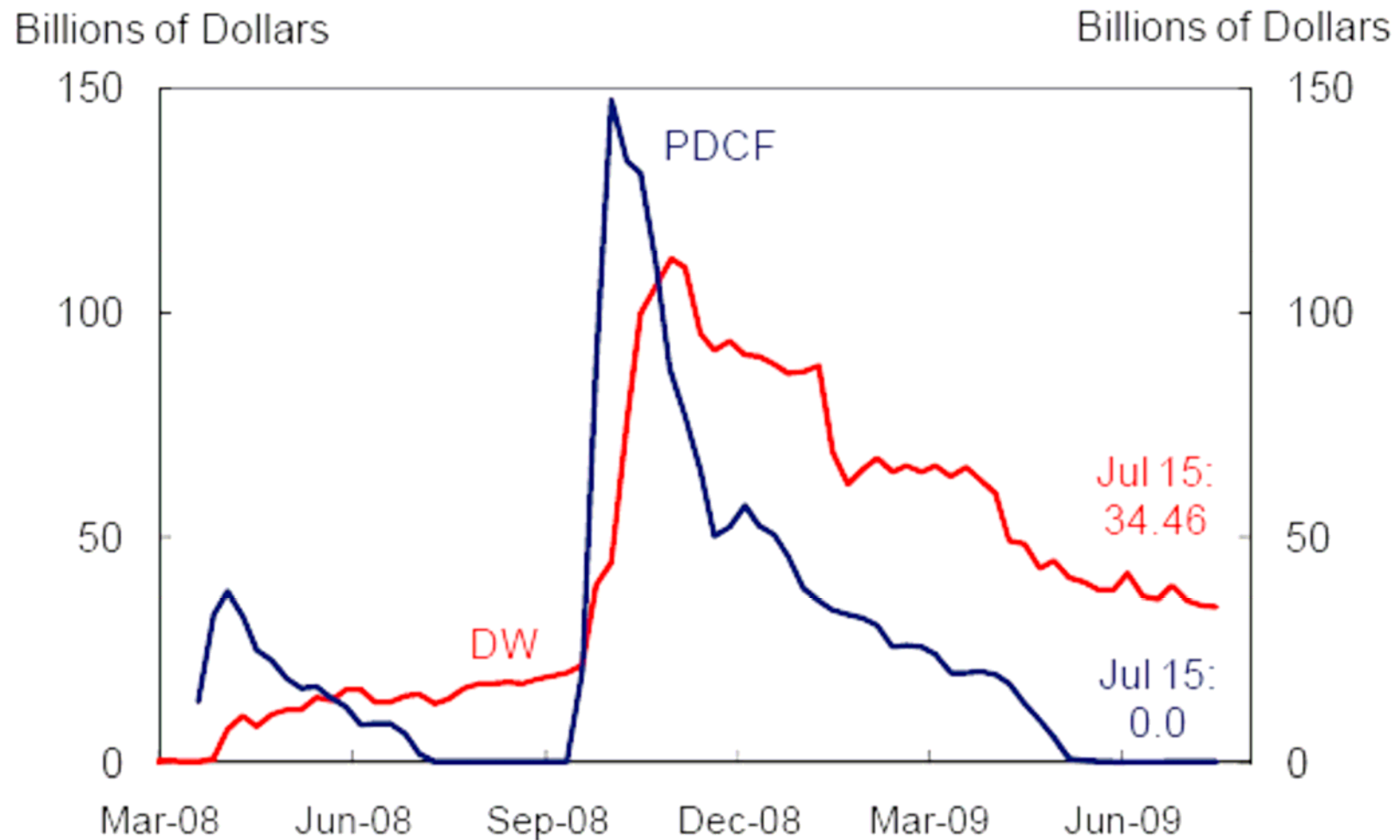
## AAA-Rated ABS/CMBS Spreads



Source: Merrill Lynch

Note: Option-adjusted spreads.

## Discount Window and PDCF Borrowing

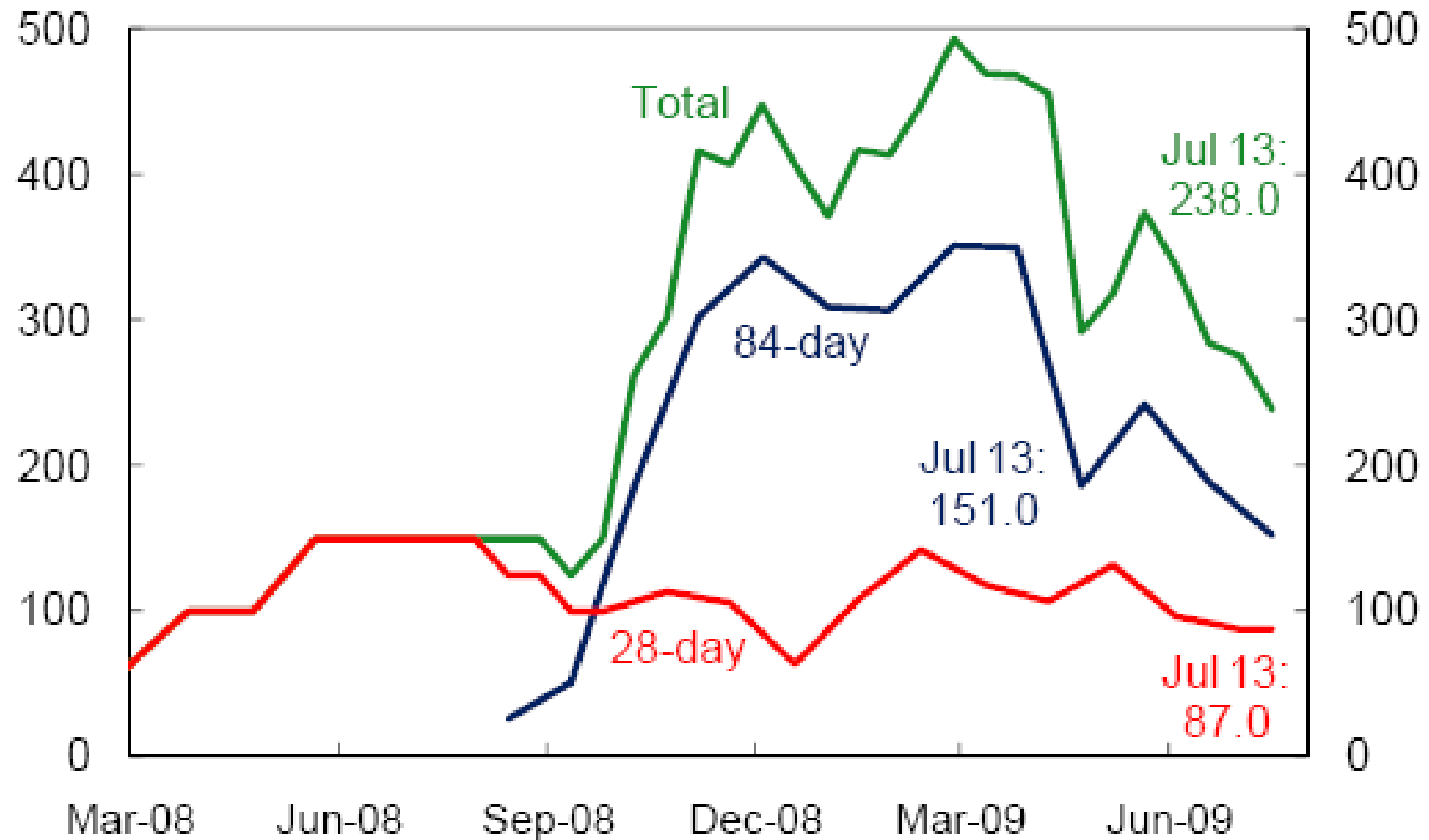


Source: Federal Reserve Board

# TAF Total Outstanding

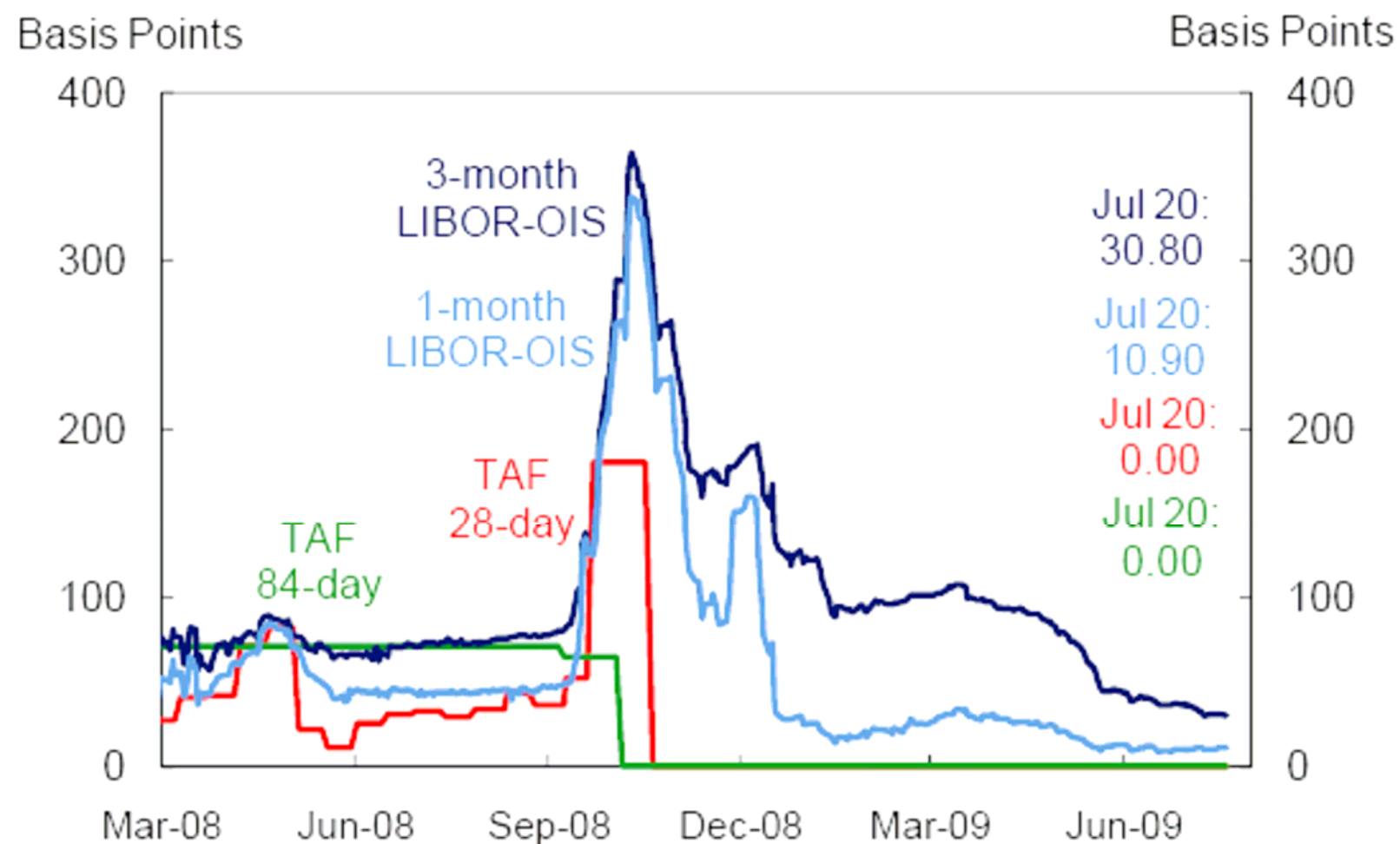
Billions of Dollars

Billions of Dollars

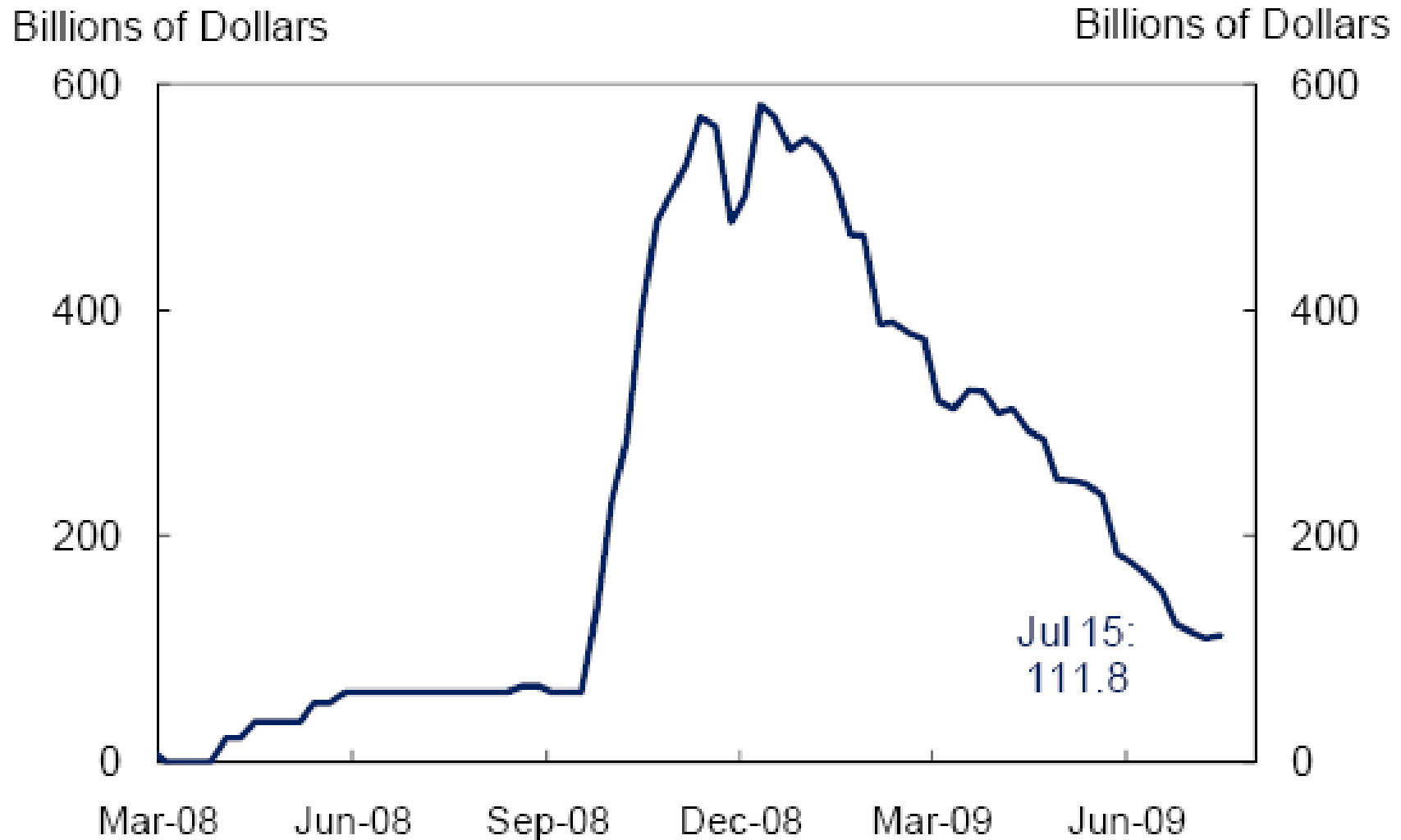


Source: Federal Reserve Board

## TAF Spreads and Libor to OIS



# Central Bank Liquidity Swaps



Source: Federal Reserve Board, Bloomberg



# Exit Strategy

- Which first?
  - Reduce central bank balance sheet size?
  - Raise interest rates?

# Exit Strategy

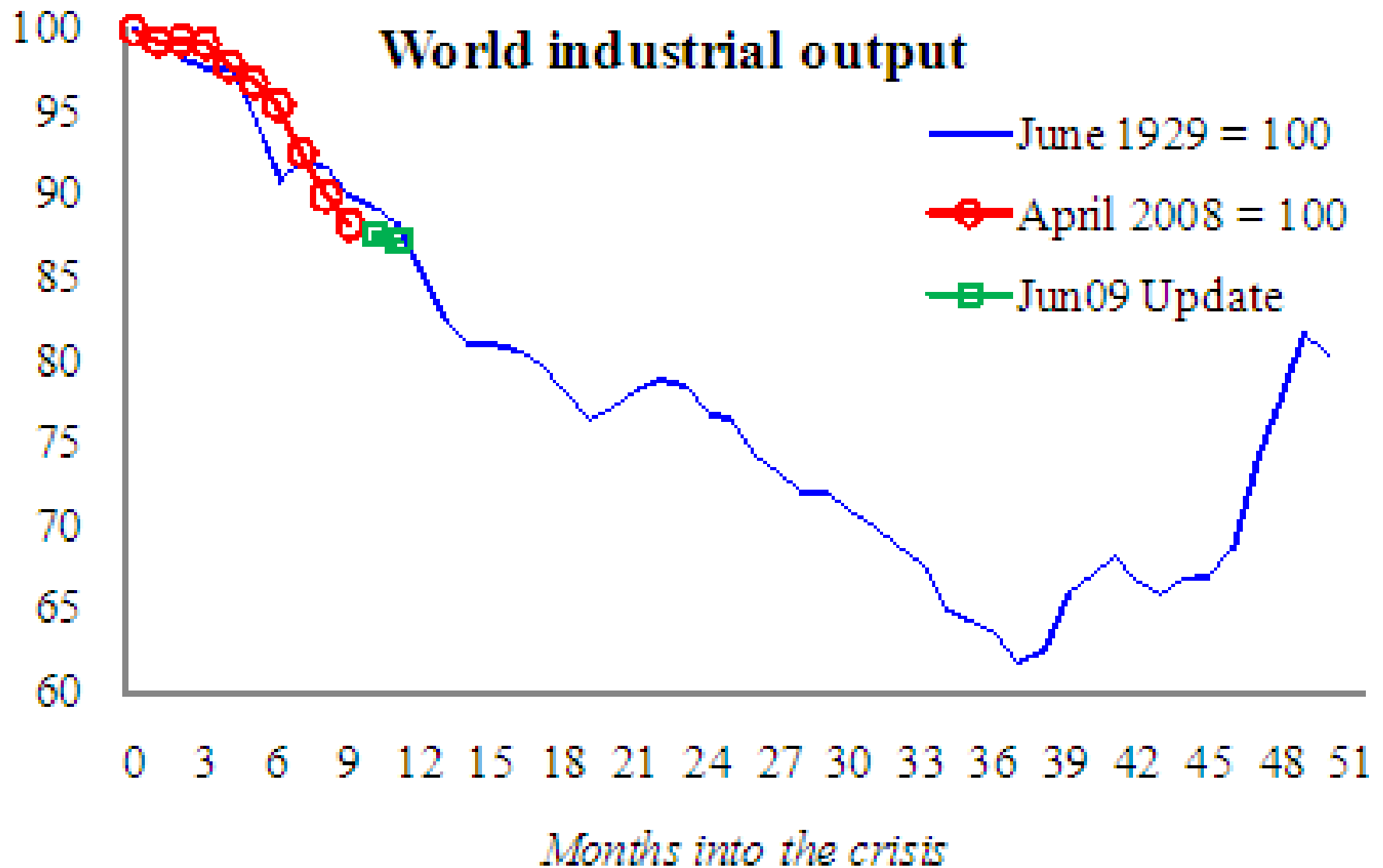
- Assets or liabilities?
- **Liabilities:** control speed of switch narrow money (CB reserves) to broad money
  - Money (CB reserves) held at CB by commercial bank reverse repos
  - Pay interest on CB reserves

# Exit Strategy

- Assets:
  - Natural run-off as maturity arrives
    - Commercial paper facilities
    - Short-term lending
  - Exceptional Fed facilities at premium
  - TALF, PPIP unlikely to take off in large scale

# The Real Sector

# Comparison with Great Depression

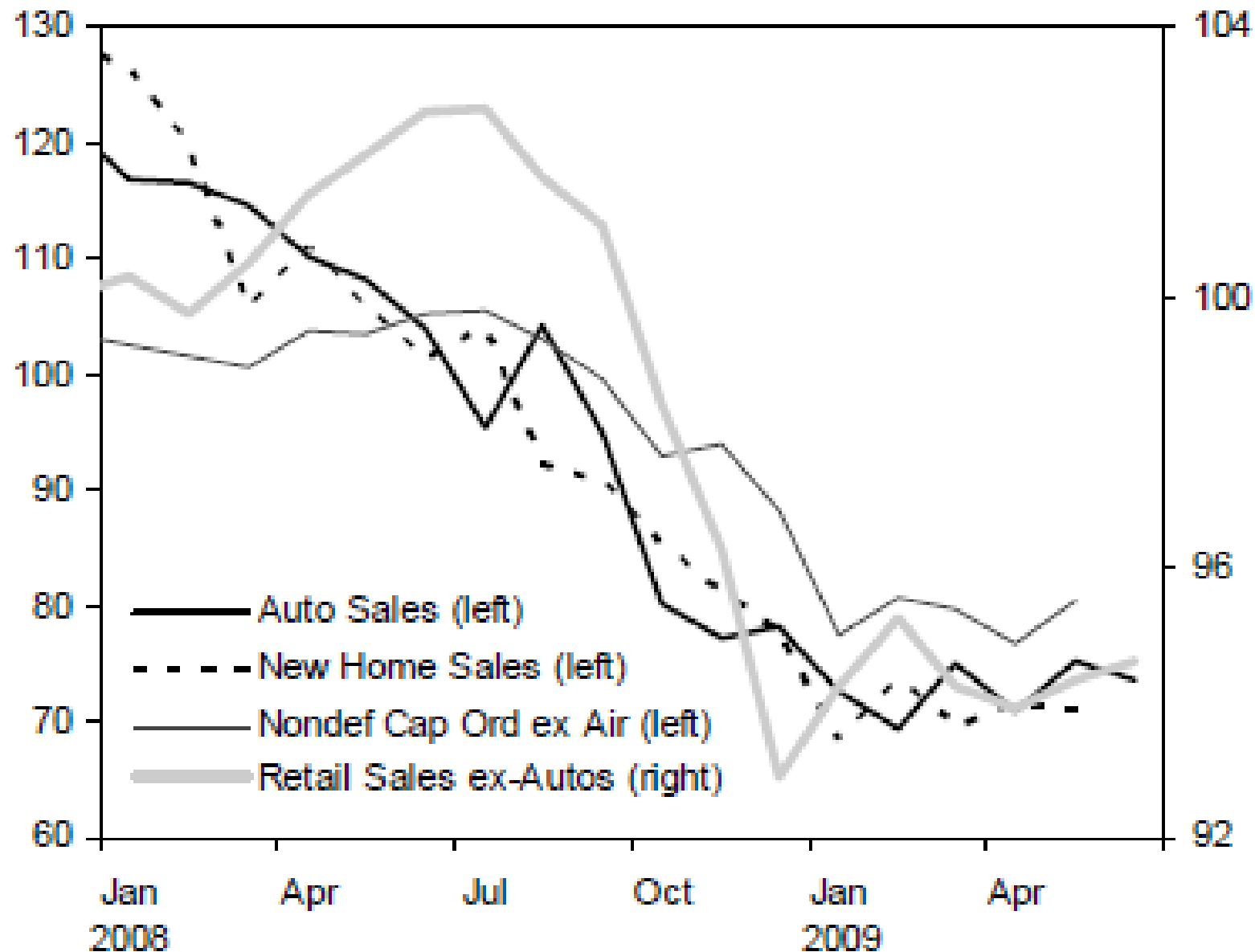


Eichengreen and O'Rourke (VoxEU 2009)

# Final Demand Still Going Sideways

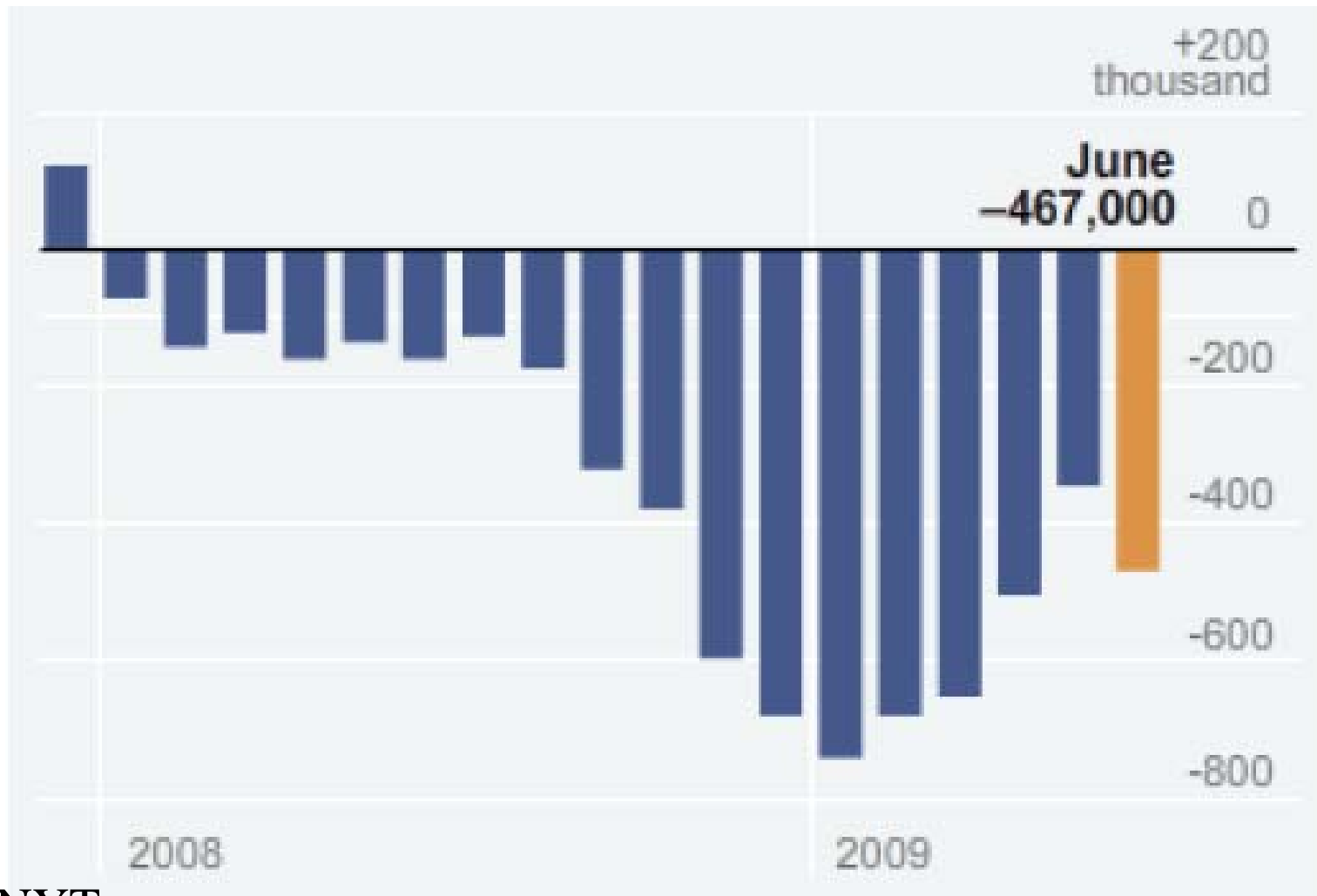
Index (2008 avg=100)

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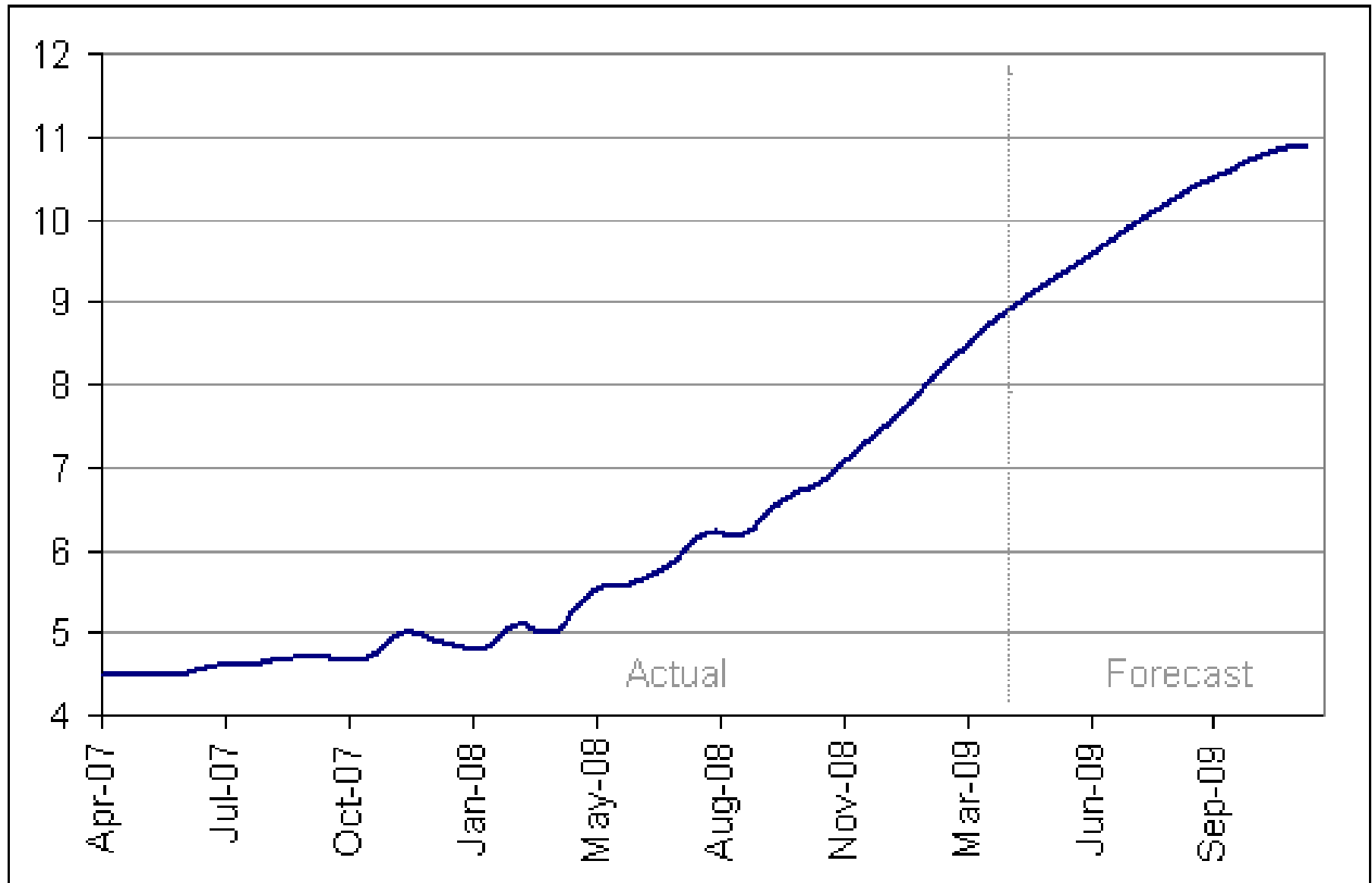
Source: Autodata Corp. National Assoc. of Realtors. Dept. of Commerce.

# US Job Losses, June 2009



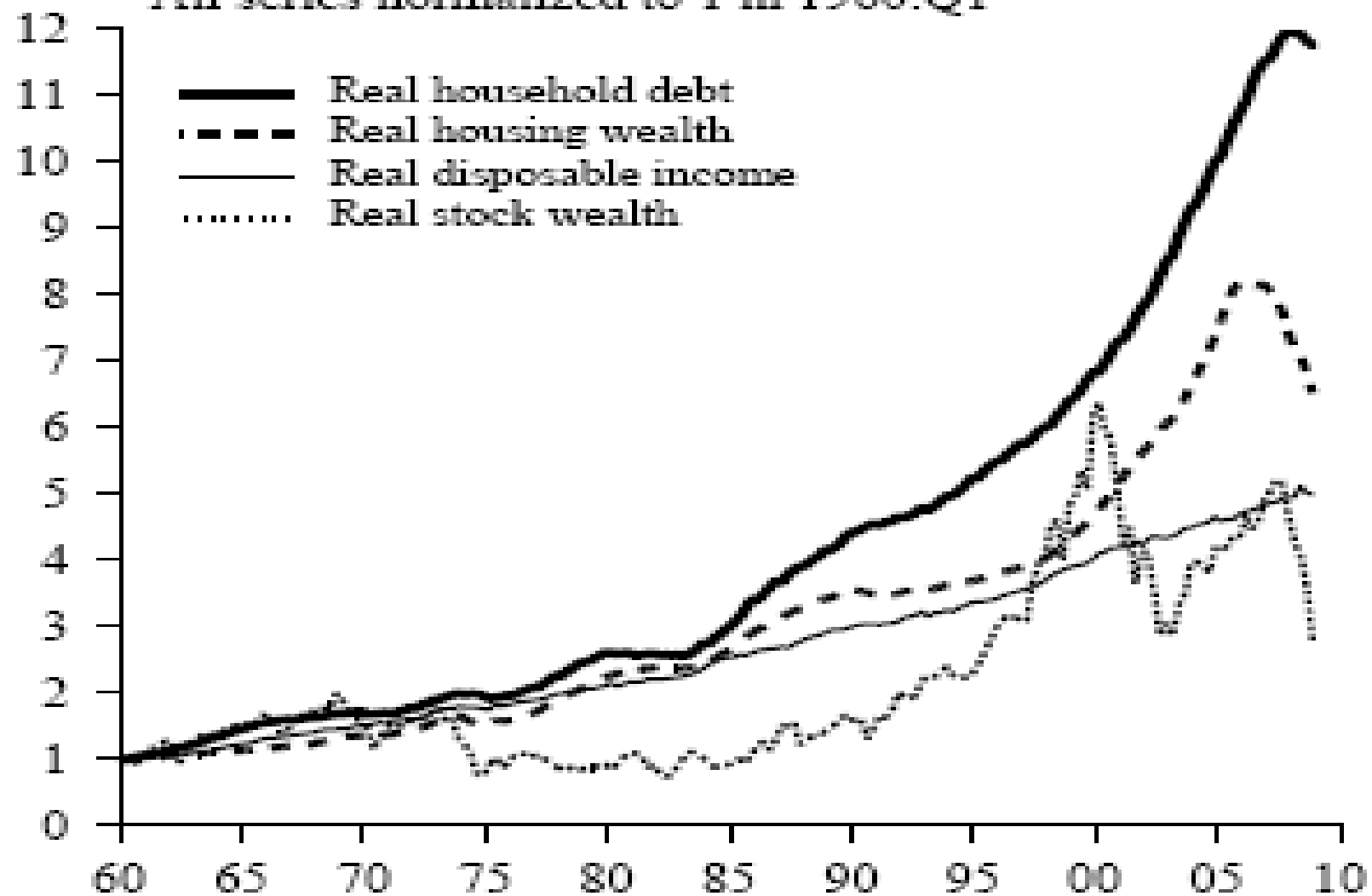
Source: NYT

# US Unemployment Projection

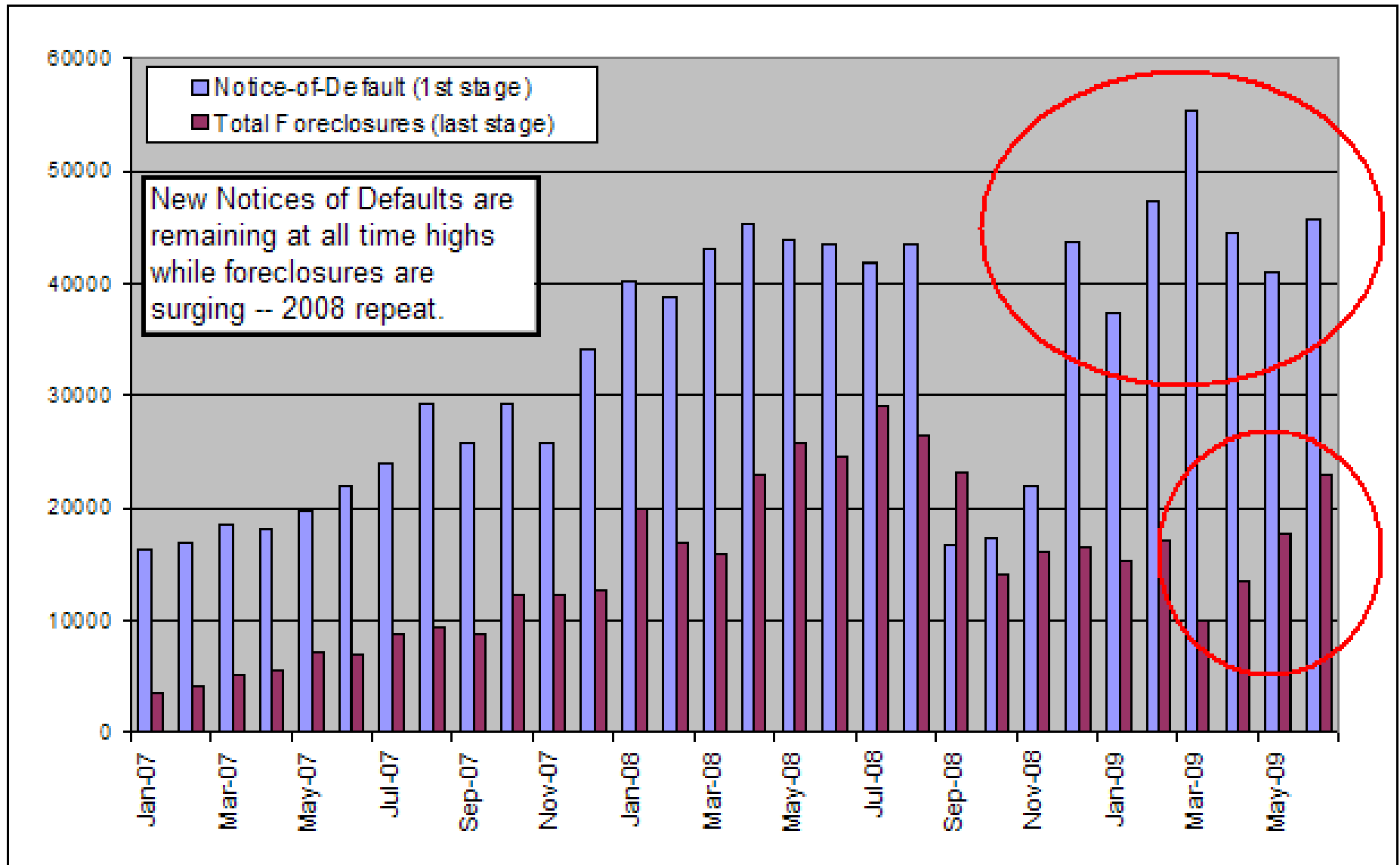




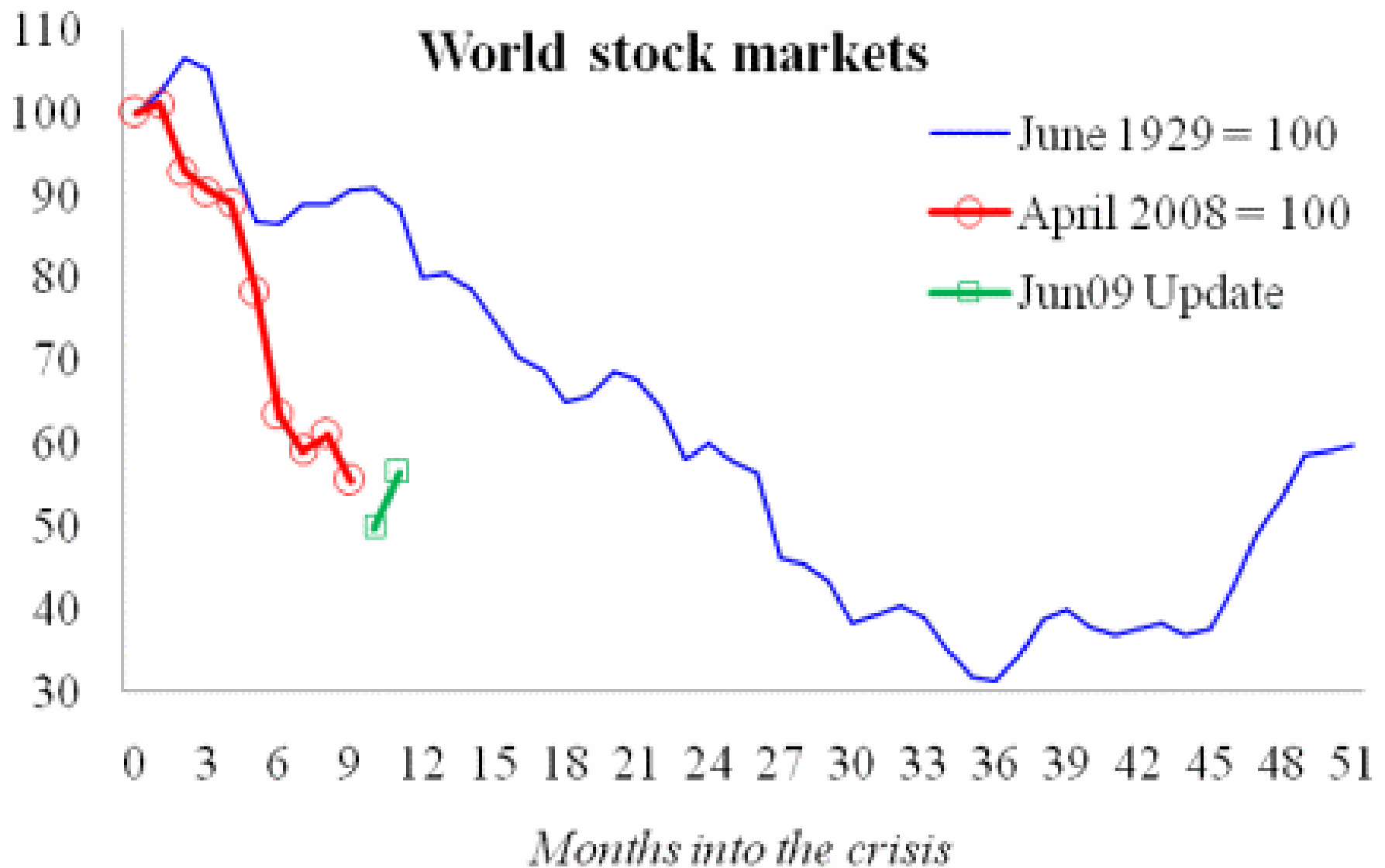
**Figure 1**  
**Real household debt, wealth, and income**  
All series normalized to 1 in 1960:Q1



# California Housing Market

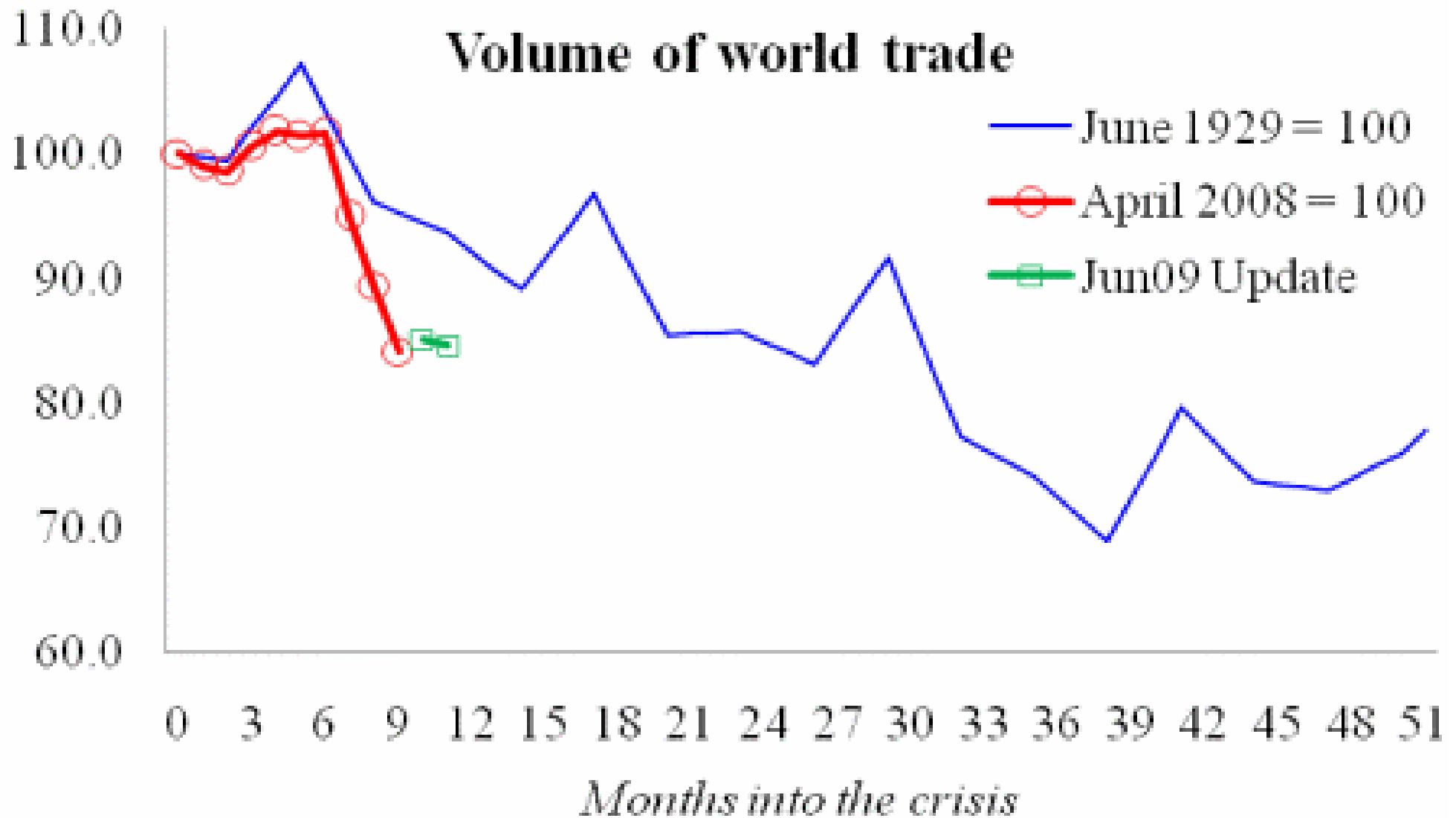


# 대공황과 주가 지수 비교



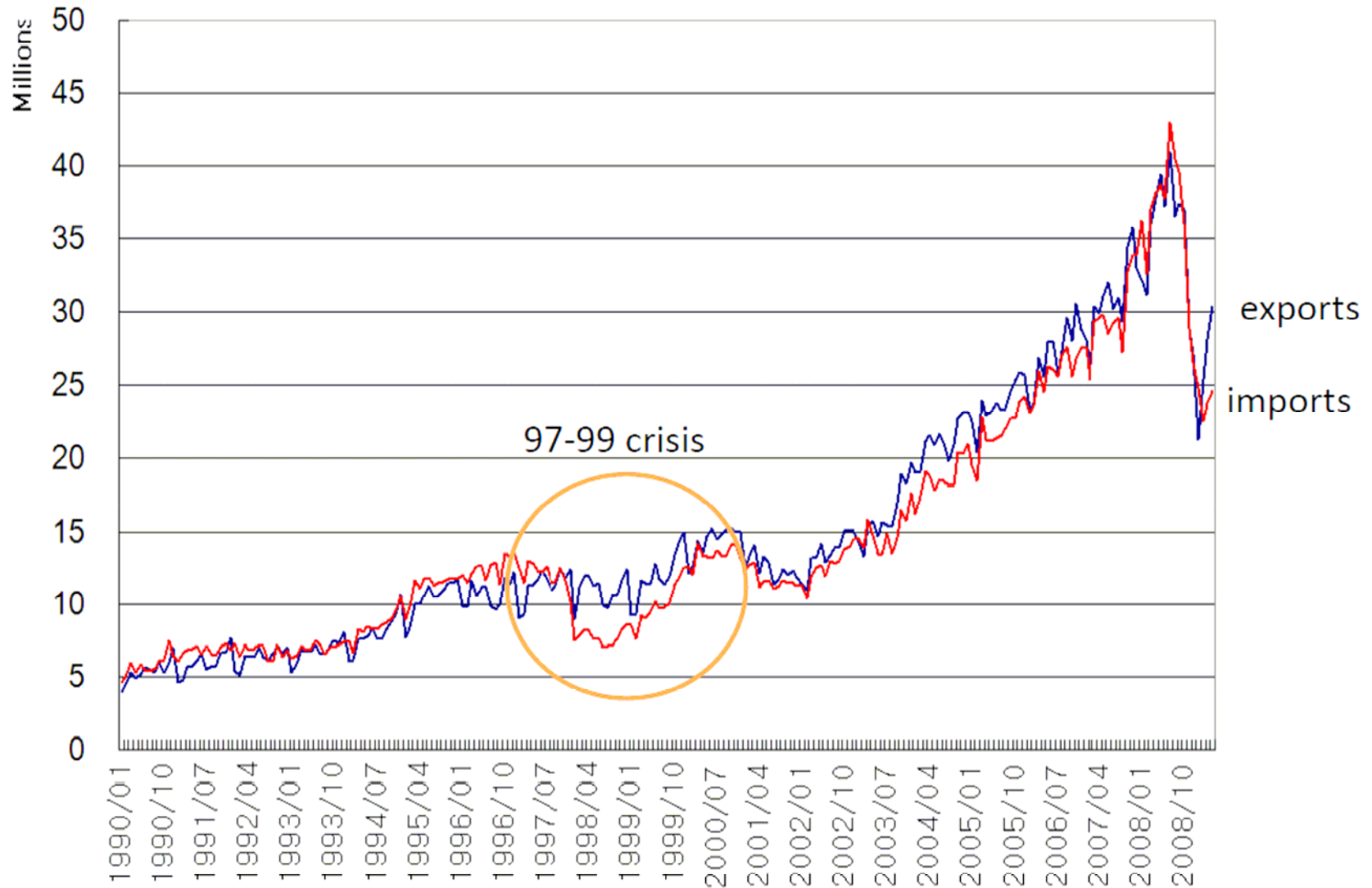
Eichengreen and O'Rourke (VoxEU 2009)

# 대공황과 무역 총량 비교

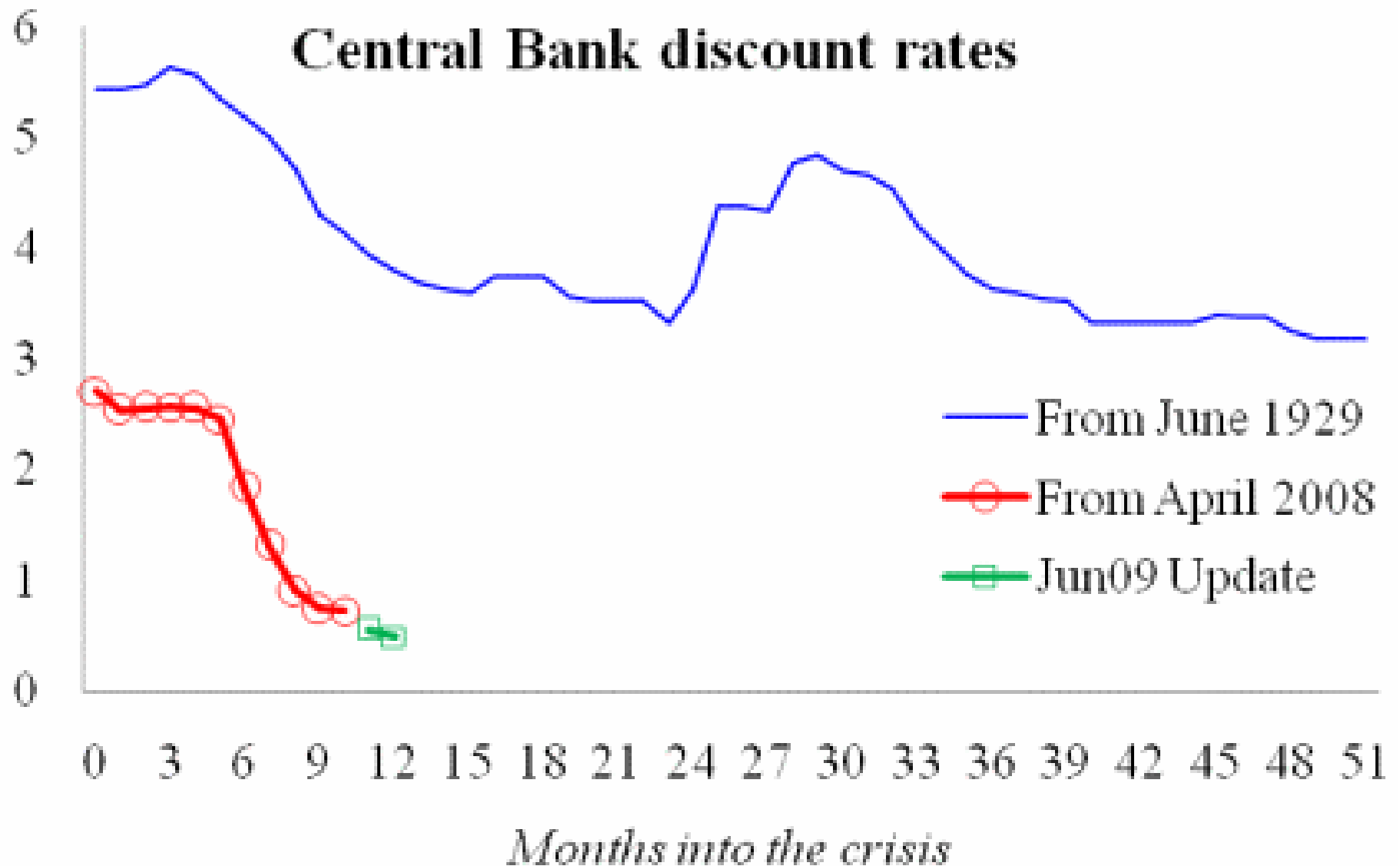


Eichengreen and O'Rourke (VoxEU 2009)

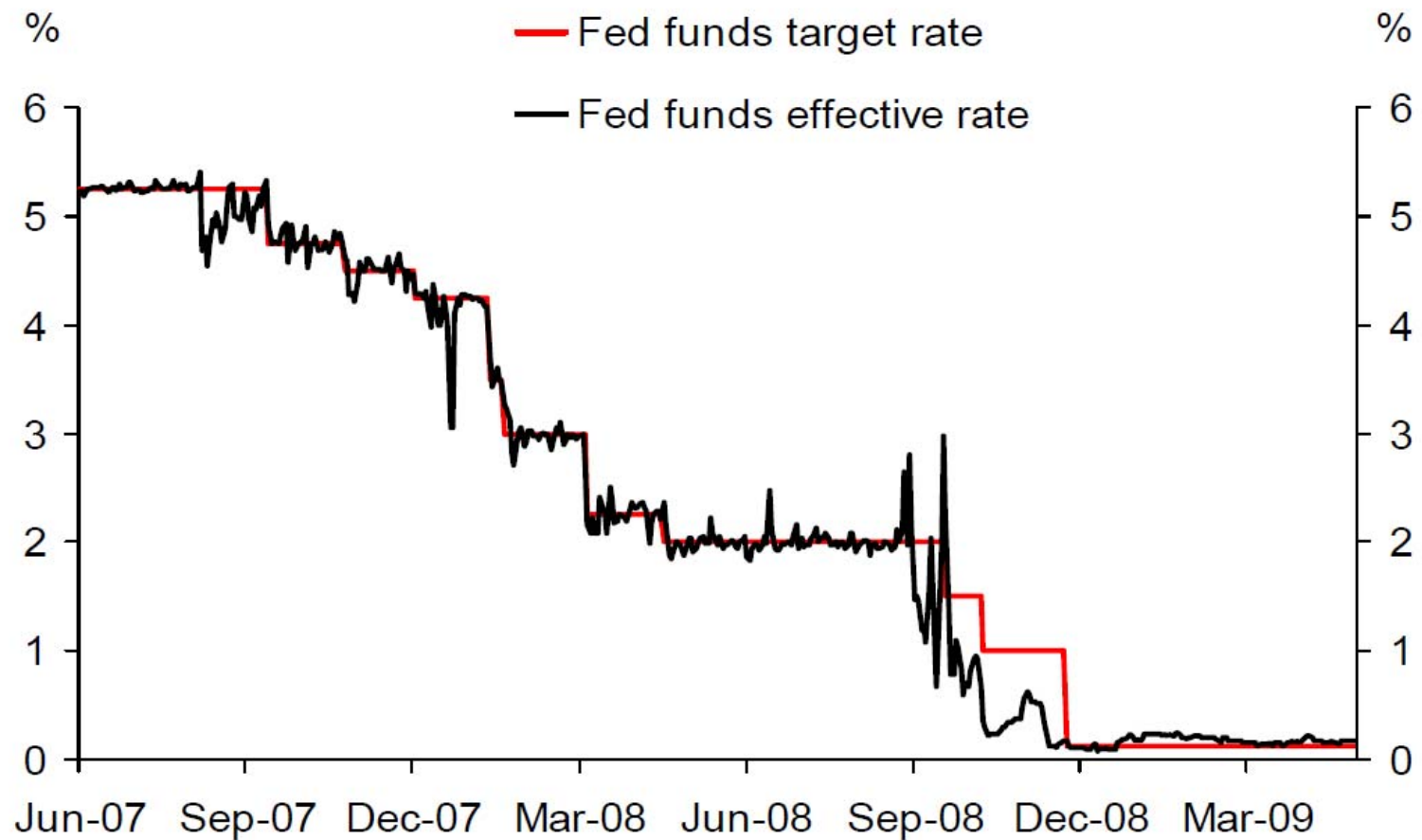
# 한국 수출과 수입 총량



# 통화정책 비교 (단기 금리)



# US Short Term Interest Rate



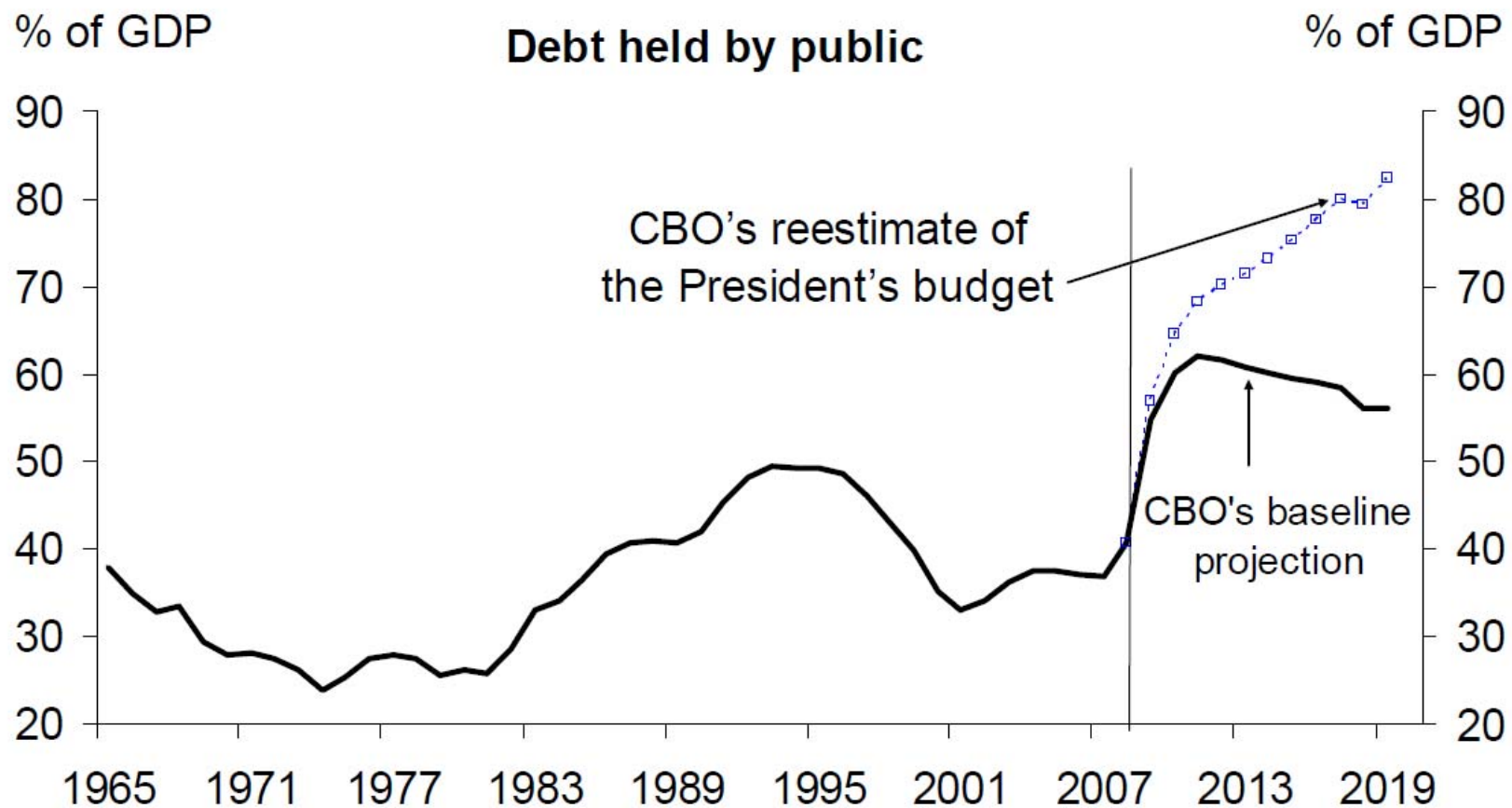
# U.S. Fiscal Outlook



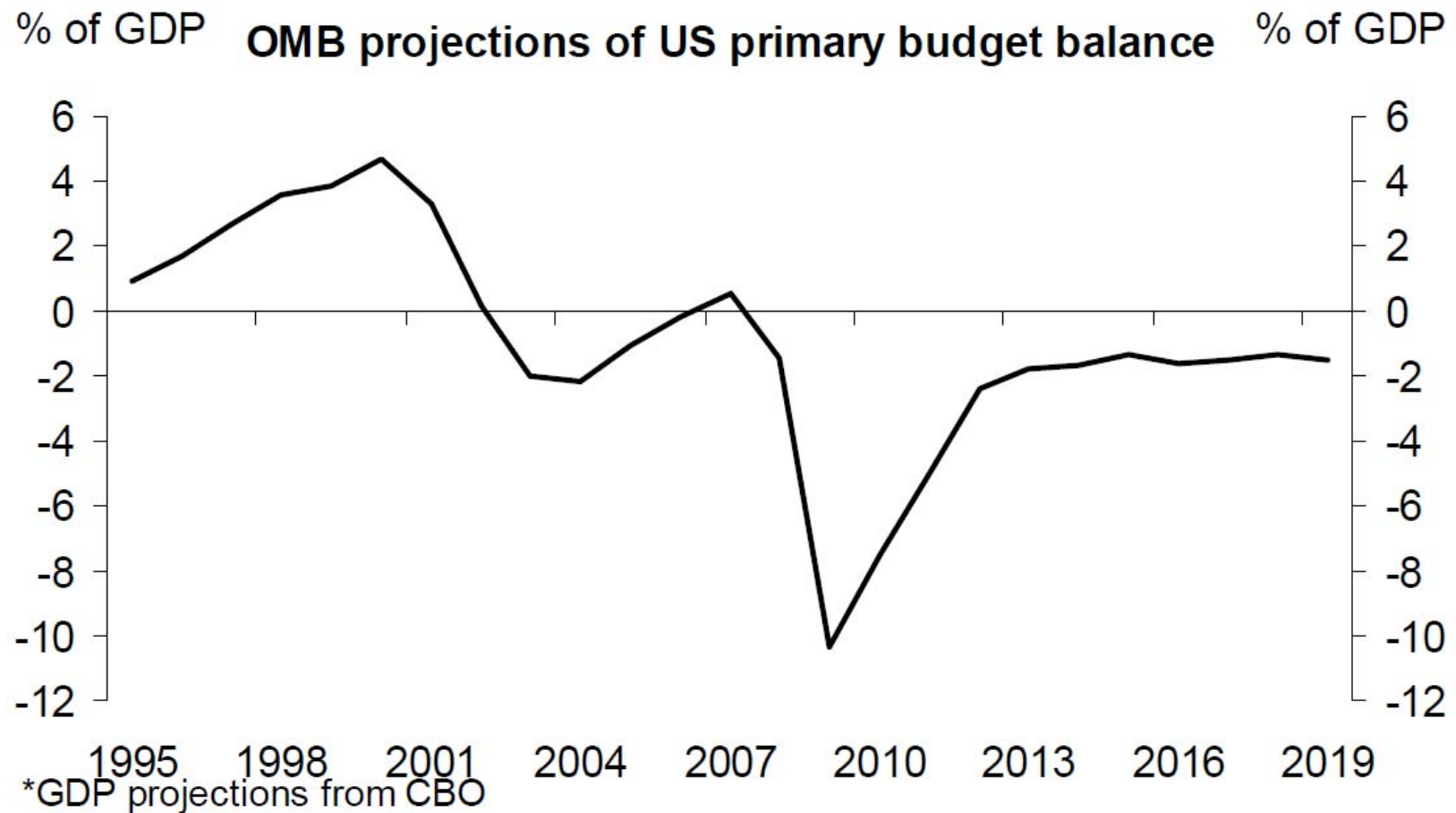
# Obama Fiscal Stimulus

- Fiscal Boost of \$ 787 billion
- Roughly same size as Troubled Assets Relief Program (TARP) (\$700 billion) for recapitalizing the banking system
- Unlike banking sector recapitalization,
  - Implementation of fiscal spending takes time
  - Effects slow to materialize in the real economy

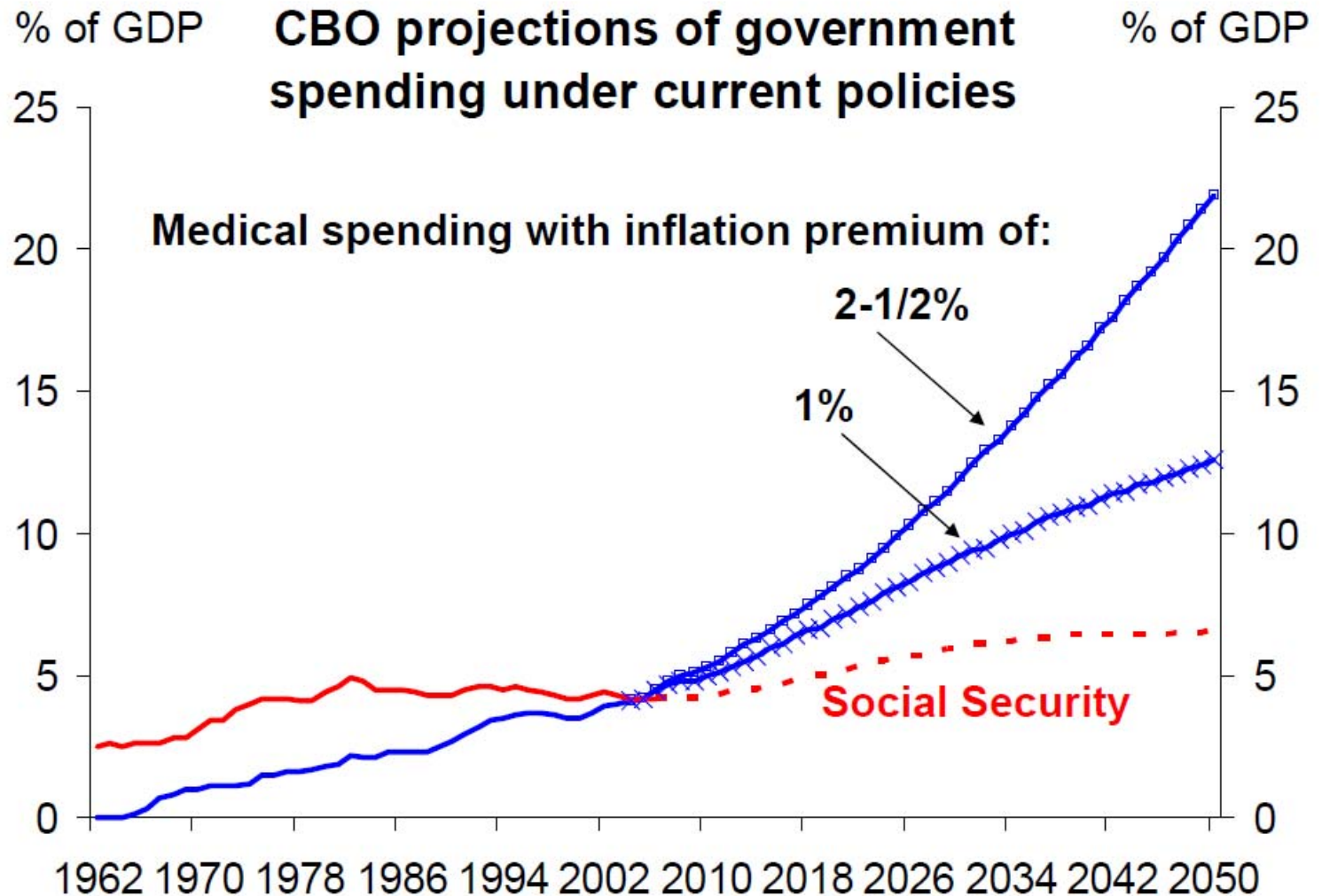
# US Fiscal Deficit



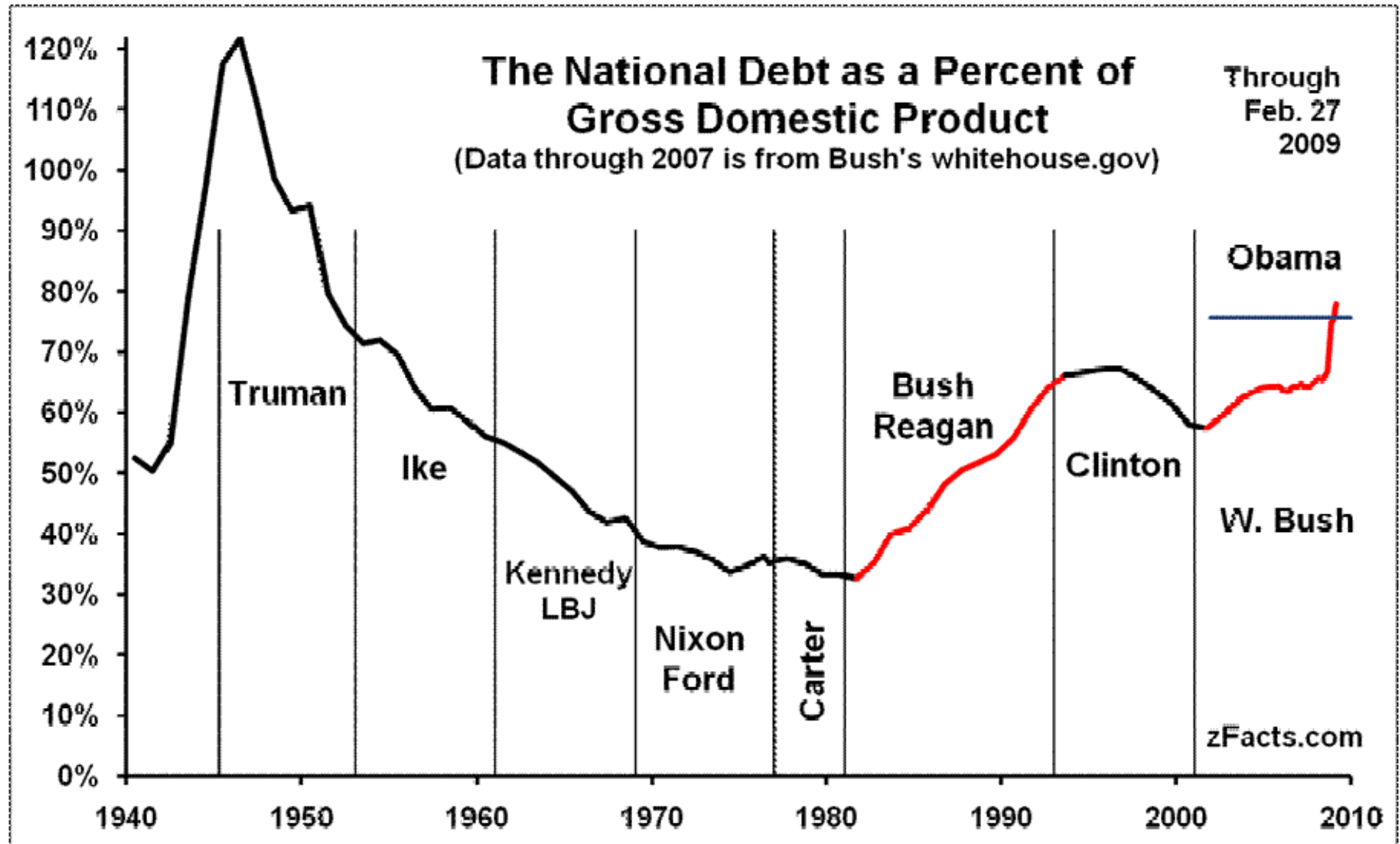
# US Fiscal Deficit



# US Fiscal Deficit

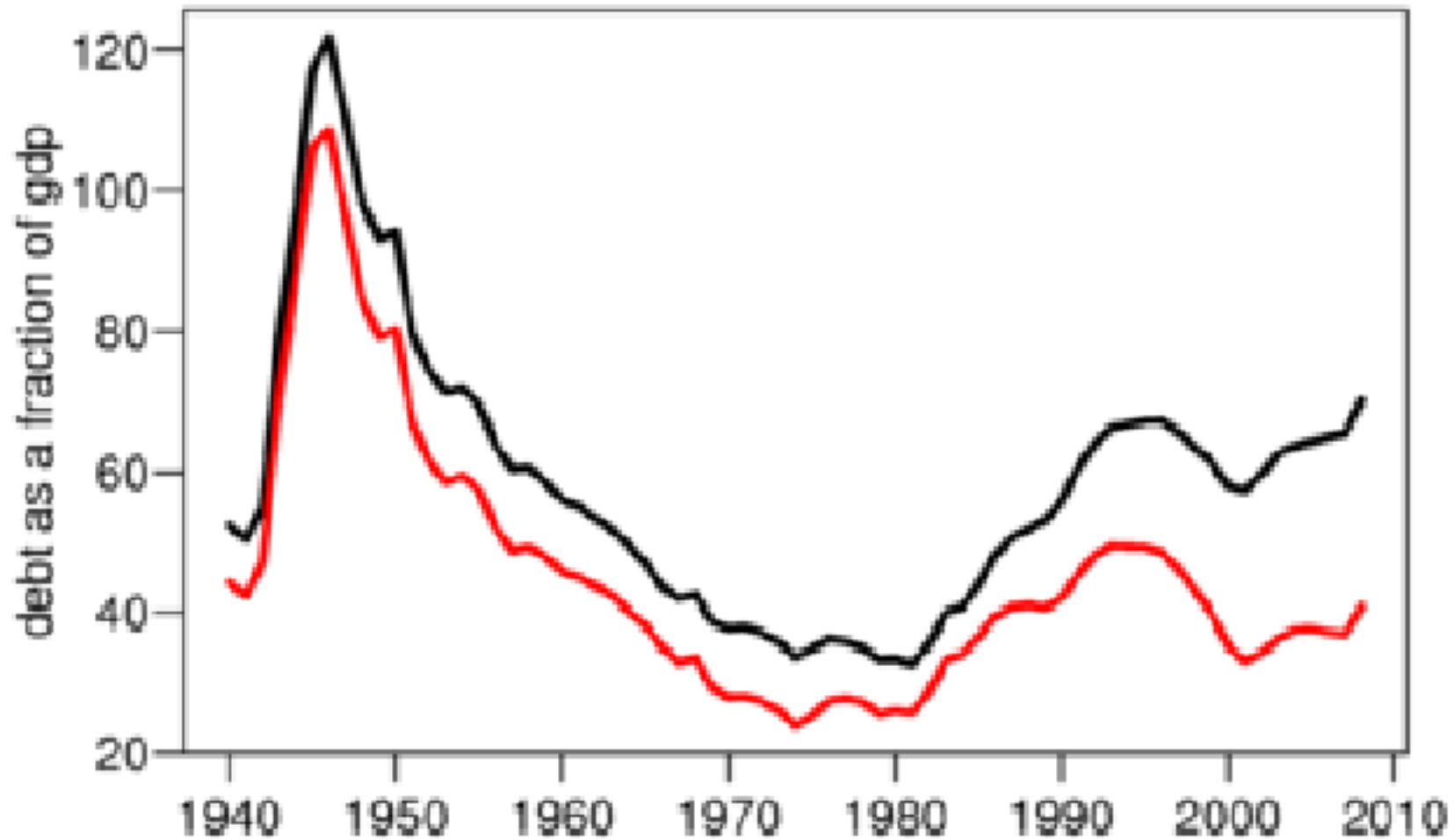


# US Debt/GDP Ratio

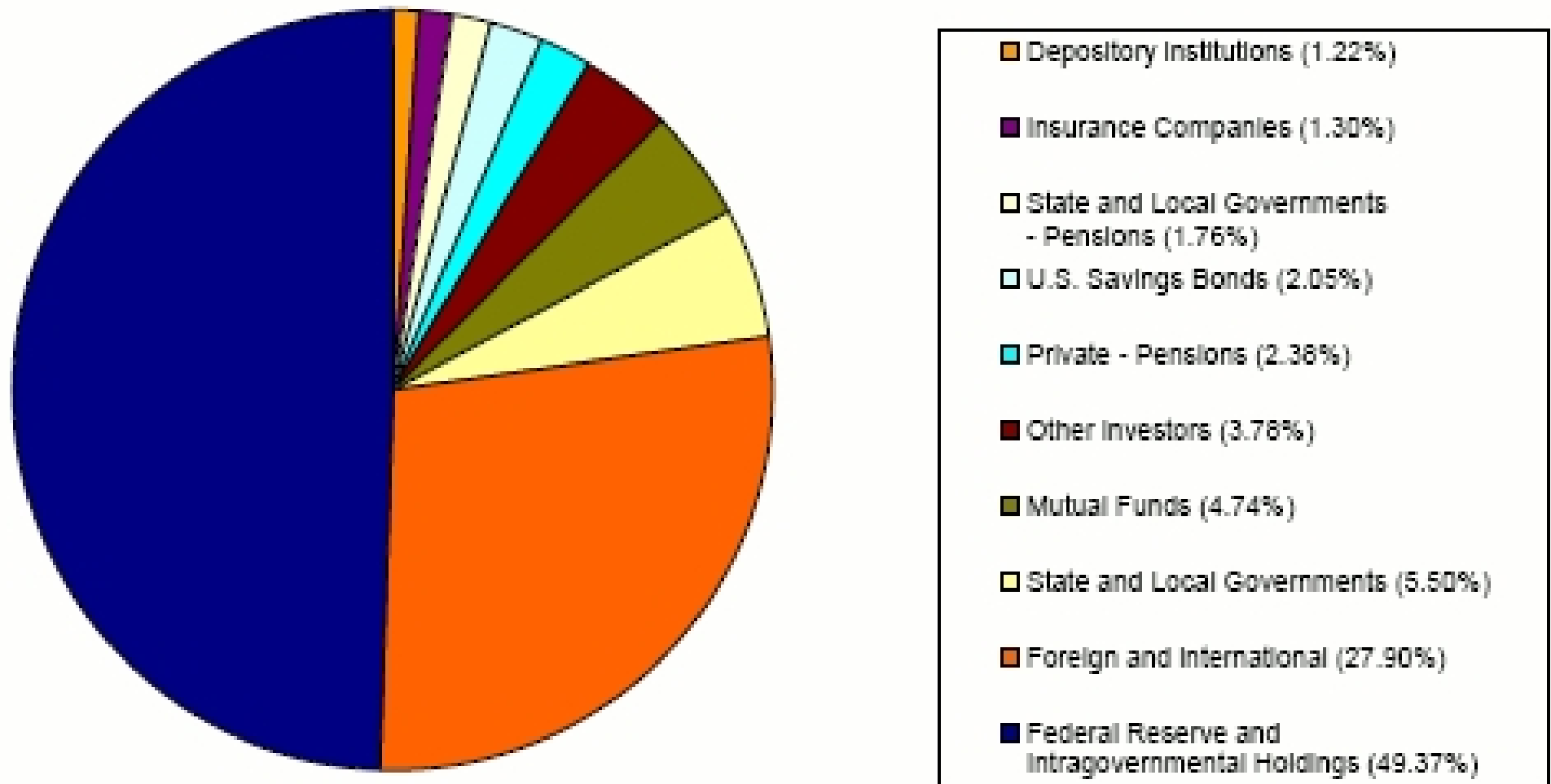


# US Govt Debt/GDP Ratio

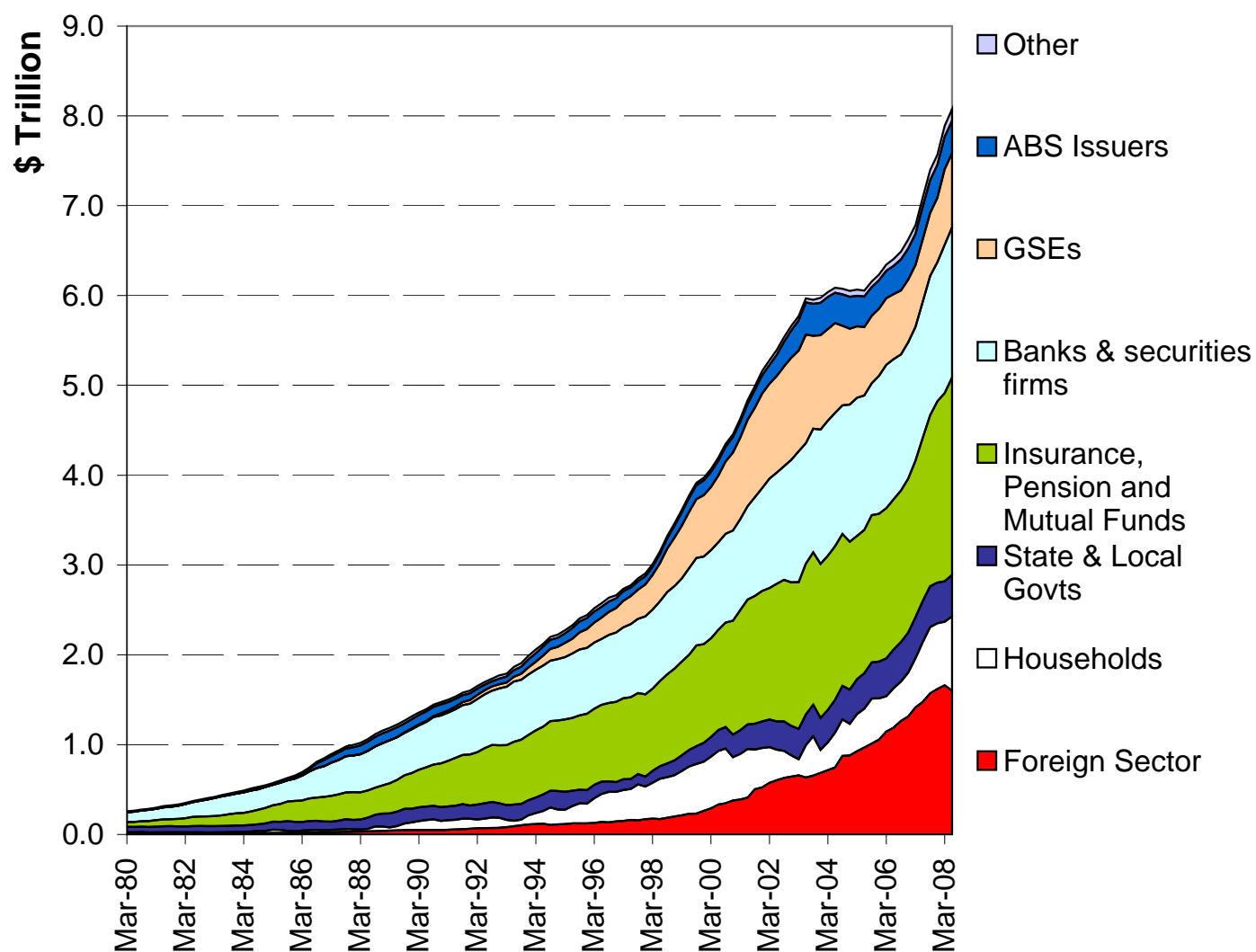
Gross (black) and held by public (red)



## Estimated Ownership of all U.S. Treasury Securities (June 2008)

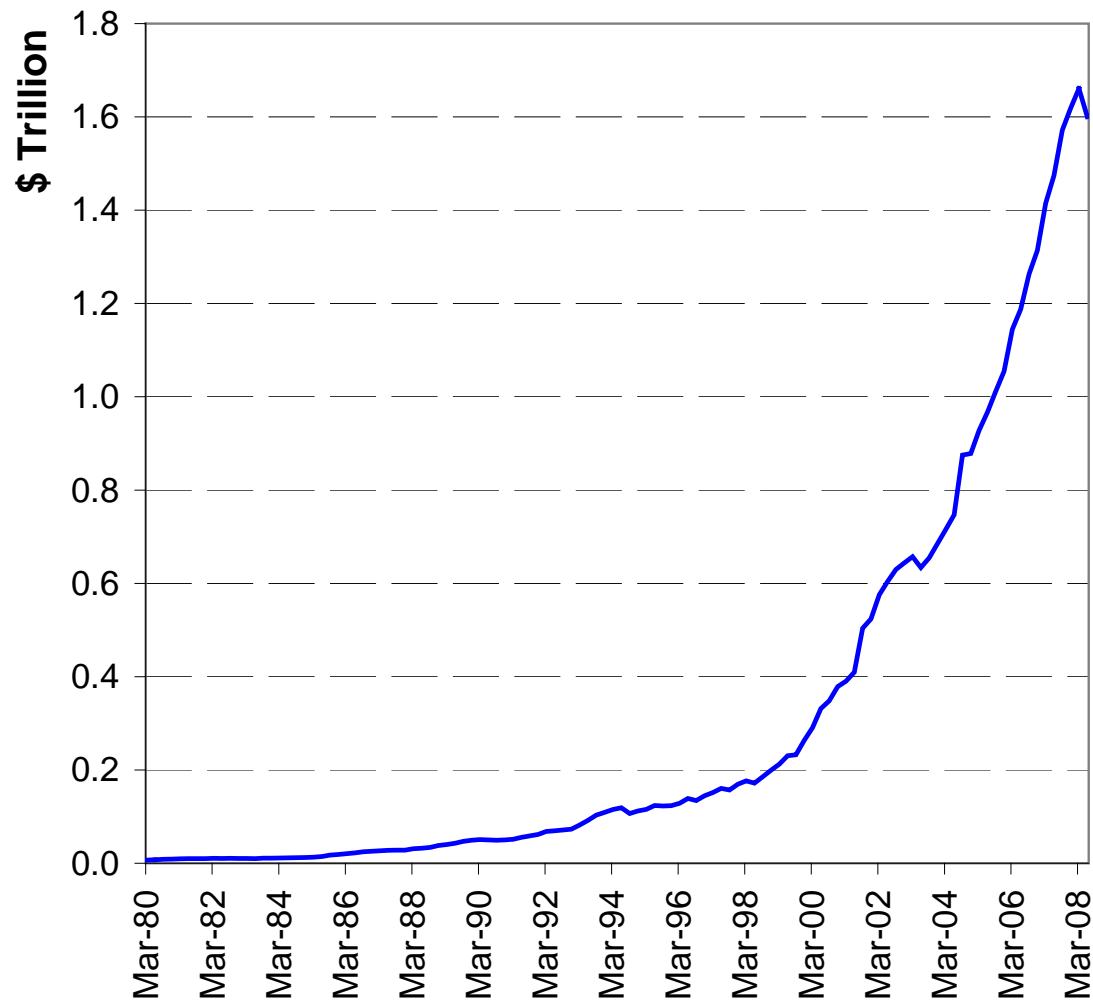


# US External Position (holders of US GSE debt)

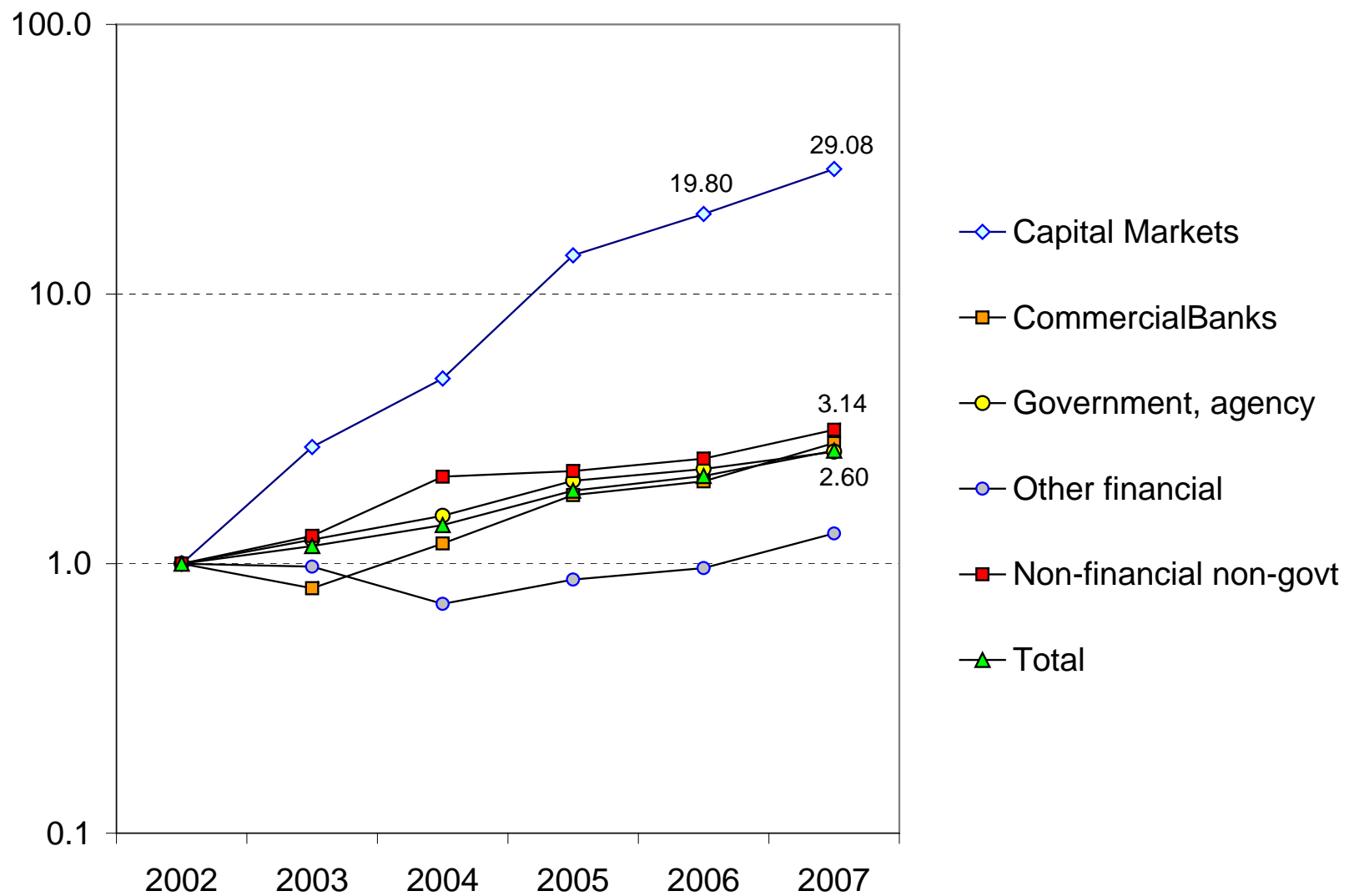




# US External Position (foreign holders of US GSE debt)



# Growth of US Debt by Sector



**Figure 1**  
**Real household debt, wealth, and income**  
All series normalized to 1 in 1960:Q1

